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TRAVEL · & EXPLORATION

A MONTHLY ILLUSTRATED MAGAZINE.

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The Nasamonians.

A Call to Exploration.

BY SIR CLEMENTS R. MARKHAM, K.C.B., F.R.S.

THERE is a joy beyond words which those alone have felt who first put their feet on lands never before visited by civilised man. Nor can tales of those who have tasted that joy ever lose their charm. The heroic devotion and gallantry of travellers and navigators is an unending source of interest to old and young, and it has been so in all ages. All men are not born with this mission to explore, for it *is* a mission; few grow up and find that it is possible to answer the call. But a very large number of young men, especially those of the English race, and their Scandinavian brethren, have this yearning, which ought to be satisfied. It is for the country's good that it should be encouraged, and satisfied when possible.

The longing, the yearning to feel the glorious exhilaration of discovery has existed in all ages. The story of some very early explorers has come down to us. They were five young men of a Libyan tribe called Nasamonians, who dwelt on the shores of the great Syrtis, a gulf of the Mediterranean between Carthage and Cyrene. They were youths with the yearning for discovery, and must have been both enterprising and endowed with forethought, or they would have failed. They resolved to explore the deserts to the south of Libya, an undertaking involving appalling unknown dangers. Travelling across the desert for many days, they seem to have reached Hausaland and the banks of the Niger. The lads returned safely. It was a grand exploit. Traders of their nation related it to Etearchus, king of the Oasis of Ammon, who repeated the story to some Greeks of Cyrene. The Greeks retailed it to Herodotus, who made known these exploring achievements to all peoples in all ages.

The joy of the Nasamonians was their first sight of the Niger. The noble army of discoverers may rightly bear their name. The moments of their completed achievements are the brightest stars in the heaven of exploration. Next, in point of time, we see Pytheas standing on the shores of Ultima Thule, wherever it may be, and that is uncertain ; but it is a name that has been remembered through all time. Pytheas had discovered Britain, the greatest and most important discovery the world has ever known, but the name most familiar to us, which has become synonymous with the extreme point reached, is Ultima Thule.

These supreme achievements of the world's greatest explorers fascinate us, and the thought of them should, and has, excited a desire of emulation in the minds of later generations. Only to think of them arouses a feeling of veneration. Take, for instance, Karlsefne, one of the first among Norsemen to land on the continent of the New World ; or the Genoese weaver, after years of patient striving, placing his foot on the sands of Guanahani, and returning thanks to God. Some modern critics have tried and failed to smirch the fair name of Columbus. They might as well try to move the snows from Mont Blanc. Think, too, of Vasco Nuñez de Balboa forcing his way through the forests of Darien and climbing a tree to be the first to behold the great Pacific Ocean. That one moment would repay a lifetime of toil.

I ask my young countrymen not for a moment to believe that there are no more Guanahani shores, no more mounts in Darien, that the work of Nasamonians is finished, and that there is nothing left to do but to make exact surveys. Every continent is full of Guanahanis and mounts in Darien, full of pioneer work to be done in some shape or form. Aspirants may still have their dreams and longings, and, with timely help and advice, may still bring their hopes to fruition. At first the ideas of a young lad, geographically inclined, are circumscribed, enlarging as he increases in years and knowledge.

I am tempted to relate the experiences of a very young midshipman many years ago, from this point of view. In those days, young naval officers on the Pacific Station were expected to know all about the Pacific coasts and islands, and their histories. Cook and Anson, Burney and Dalrymple, were as much a part of their course of study as Hutton's mathematics and Inman's navigation. Well—the ship was becalmed off Cape San Lucas, nearly on the spot where Cavendish captured his great galleon. That event led to the discussion of possible undiscovered islands in the Pacific. There was Shelvocke's Island for instance. So the midshipmen eagerly looked for undiscovered islands in the long voyage to the Sandwich Islands, and in the much longer voyage, under sail, from Honolulu to Valparaiso. The visibility of distant objects was observed from the fore-topmast head in each watch, and shown

Clements R Markham

[Grosvenor Studios, Phot.

in circles on a track chart, so as to record the exact area of the Pacific which the young eyes had scanned. This is a slight incident, but it indicates one out of many ways in which the yearning for discovery may show itself in very early life.

The ship next went to Juan Fernandez, and all were full of their reminiscences of Robinson Crusoe, and of their more recent acquaintance with Alexander Selkirk, in the pages of Burney. The island is mountainous and thickly wooded. There was a tree-covered ridge with precipitous sides descending to a profound gorge on one side, with apparently an easier approach from the other. It was said that neither Selkirk nor anyone else had ever crossed that ridge. Two boys determined to make the attempt. It would be a discovery. We will call them G—— and M——. They set out, and after some hours of difficult ascent through dense underwood and leaves of immense size, they reached the summit of the ridge. G——was pressing on through those immense leaves, which quite blinded the view, when his companion suddenly heard a crash and a cry. It was the edge of a precipice at least a thousand feet high. There was a feeble cry from far below. G—— had providentially been stopped by a narrow ledge after a fall of nearly fifty feet. It was just wide enough for his body. Below there were hundreds of feet of sheer precipice. His ankle was sprained. His companion was to hurry back to the ship for help. M—— almost flew, losing his way in the dense vegetation twice, and coming on board torn, scratched, and excited. Two parties were organised, one to work from above and lower the rope to the lost one, the other to go to the foot of the precipice and attend to the rope from below. But nothing could be done without an answering cry from G—— to fix the spot. Night came on rapidly. M—— went with the party up the gorge, but there was no answering cry from his lost friend, only the mournful cries of some screech owls. He passed the night on the tenterhooks of anxiety and suffering from thirst, for though the party had plenty of sherry, there was no water. In the morning there was no reply to their despairing cries. G—— had managed to creep along the ledge with great difficulty, and in peril of his life at each step, until he finally succeeded in getting out on a slope near the sea. The first person he met was the good old Admiral himself, who helped him to limp down to the beach. He was saved to become one of the greatest ornaments of the navy, and to die a hero's death in the fulness of time.

In following his companion's career, we next find him at more serious work, serving in one of the Arctic expeditions in search of Sir John Franklin's ships. In the spring, sledge search parties were to go over the ice in all directions ; but it so happened that one party was to start ten days before the others, and our midshipman was attached to it.

Thus he was the first to touch part of the shore of Cornwallis Island. It was all full of interest, the wild scenery, the Silurian fossils, reminding of past ages, the quaint curiosity of polar bears with fatal results to their lives, the mysterious vestiges of ancient encampments, but, above all, the joy of treading on an undiscovered shore.

Next he has retired from the Naval Service, and is penetrating far into the forests to the eastward of the Peruvian Andes, mainly as a geographical pioneer, but with an eye for a certain invaluable genus of plants. One day he was in a profound ravine, with sides densely covered with tropical growth, and a rapid torrent dashing over rocks and stones in the depths. With his glass he saw what appeared to be a clump of the very trees he wished to find. They were high up on the other side, but he resolved to reach the spot, though this noisy river of Chiri-mayu had to be crossed. The fording was no easy proceeding—indeed, it was not without danger—and the Indian servant was washed away, though luckily stopped by a grounded snag. The ascent through the dense undergrowth, dragged back by thorns, and entangled by lianas, took a working day, but the reward was great. There were the true Chinchona trees, with their leaves of glossy green and red ribs, and their lovely panicles of sweet-scented flowers. Their discovery was a joy equal to the treading of an unknown shore.

Six years afterwards, the discovery of these trees and other circumstances led to the same explorer being again in those dense forests on an important public service ; and the great work as well as the great joy of his life was the successful introduction of Chinchona cultivation into India. The aspirations of this young midshipman have been traced up to their final gratification as one example out of hundreds. Many have achieved greater results with fewer advantages. The late Richard Spruce rose from being one of a labourer's family at a village school. He became one of our most accomplished Amazon explorers, and the highest authority in Europe in one department of botany. All can rise with patience, perseverance, industry, and opportunity. But there is no royal road.

We venerate above all the heroic men who become martyrs to science : who die in the midst of their discoveries. What a scene was that when McClintock found the skeleton of a young man on the shingly ridge of King William Island, by the wild, frozen sea. He had " forged the last link of the North-West Passage with his life." Even more pathetic is the news we have lately received of the deaths of my poor friend, Mylius Erichsen, the charming writer and accomplished explorer, and of his companions, Lieutenant Hagen and Mr. Brönlund. They went out to complete the discovery of the north-east coast of Greenland, and they, too, forged the last link of a great discovery with their lives. Can any-

thing be more Spartan in its simplicity, with no regret, no complaint, and yet more pathetic in its silence, than the note found on the body of Brönlund, the last survivor ?

" I perished in latitude 79° N., under the hardships of the return journey over the ice in November. I reached this place under a waning moon, and cannot go on because of my frozen feet and the darkness."

Only a few years ago our own Antarctic explorers made important discoveries on a large scale by almost superhuman endurance, energy, skill, and the high qualities which alone ensure success. Some of them had the yearning for such achievement from very early in their lives. There are many boys and young men in all parts of this country, in America, and especially in Scandinavia, who are feeling this desire and are almost born geographers. Dr. Nansen is an instance ; and another instance is the renowned Swedish explorer Sven Hedin. Not content with reading the narratives of great discoverers when a boy, he made beautiful little maps of the work of each, with his notes. Well grounded and steeped in his subject, he completed his studies at Halle and Berlin, took a preliminary flight over Mesopotamia and Persia, and then began his serious work. Such an excellent example is by all means to be recommended, and some of the holders of the Royal Geographical Society's diplomas, and of those given by Oxford and Cambridge, do not fall far short of it. There are, however, many aspirants to the position of exploring geographers who are prevented by circumstances from attaining the positions of holders of diplomas. A very considerable number of these are employed abroad in other ways, and so near the scenes of action that they are quite in a position to do useful geographical work if they had encouragement and advice. Many more are at home, tied to uncongenial work, but longing for an exploring life in a distant land. The present writer's very large correspondence with them gives him a knowledge of their numbers and, in several instances, of their qualifications. He has done his best. Some have succeeded, but he knows how many are disappointed.

Napoleon said that any soldier might have a Marshal's baton in his knapsack. We speak with equal assurance, and tell our young aspirants that any Nasamonian may have the Royal Geographical Society's medal in his sextant case. Something has long been needed for our great army of geographical recruits. They deserve to be given a chance. They should be shown when and how to take advantage of it when it comes. There should be a friendly and sympathetic centre to which they can go or write for advice of all kinds. I cannot but hope that this Magazine may efficiently occupy such a position.

The Danish Expedition to North-East Greenland.

By Lieut. A. TROLLE, Danish Royal Navy.

The Danish Expedition to north-east Greenland left Copenhagen on board the *Danmark* in June 1906, and returned, after having fulfilled its programme, in August 1908. The objects of the expedition, of which His Majesty, King Frederick VIII. had graciously consented to be Patron, were to explore the hitherto unknown parts of north-east Greenland, to map its outlines and form an idea as to the dimensions of the huge ice-masses of the interior, and last, but not least, to see whether some small tribes of Eskimos were still hunting seal and walrus along the coast. The expedition was organised and led by Mr. Mylius Erichsen, who in 1902-4 had carried out in company with Count Harald Moltke and Mr. Knud Rasmussen an admirable bit of geographical and ethnological research work along the west coast of Greenland. To me was entrusted the command of the *Danmark*, and after the death of Mylius Erichsen I had to take his place as leader of the expedition.

So much by way of introduction. After crossing the Greenland Sea we came to the heavy masses of ice which, drifting southward with the polar current, block the east coast of Greenland, shape their course round Cape Farewell, and end their voyage somewhere in the Atlantic Ocean in the neighbourhood of Newfoundland. The pack-ice was uncommonly heavy in 1906, so heavy that the Norwegian whalers who generally manage to reach the coast in their search for seals, that year had been obliged to give up their attempts, and as a matter of fact the *Danmark* was the only ship which succeeded in forcing her way through. And, to be sure, the passage was anything but easy. More than once the *Danmark* stuck in the ice, and for several days it was impossible to move at all, until at last a slight change in the disposition of the ice opened up a lane just wide enough to let the ship through. Our ice-pilot, Ring, a man with a great deal of experience, said afterwards that we had ten chances to go to Hell and as many to go to Heaven, but only one to reach Greenland!

Once inside the heavy pack-ice we had smaller ice-floes to contend with, and the most exquisite scenery to admire in our leisure hours. The country on the whole is very much like parts of Norway. There are the same splendid mountains, broken here and there with deep fjords, and

an endless number of small islands and rocks along the coast. No wonder that the two artists who accompanied the expedition could never tire of the sight. Twice we were caught by a southerly current and carried about twenty miles to the south, but every time we managed to strike a northerly course towards our destination, Cape Bismarck (77° N. Lat.). Walruses and big seals were tumbling about in the smooth waters or lying on small pieces of ice, enjoying the beautiful sunshine. Manniche, our ornithologist and best shot, had a fine opportunity to show his skill and shot several of them while they were looking at us with big,

The "Danmark" in the Pack-Ice.

[Wegener Phot.

wondering eyes, for surely this was their first acquaintance with the lord of creation and his firearms.

Mylius Erichsen and some of the others took a whale-boat and rowed to Koldewey Island. It had been sighted by the *Germania* in 1890, but no civilized man had ever set foot upon its shores. They found some fox-traps and some stones, which apparently had been put up by Eskimos, but it was impossible to say whether the stones had been put there yesterday or a hundred years ago—so slight are the traces left by the passage of the centuries in Greenland.

Dangers were not yet a thing of the past, for we had to find a harbour that would shelter us against the heavy pack-ice outside. A

Map of Greenland, showing the Discoveries of the Danish National Expedition.

[From a Map supplied by Lieut. A. Trolle

storm might spring up, press the ice towards the shore, and in the crash of the giant floes our ship would undoubtedly be crushed and go down if she were not in safe quarters. At last a harbour was found, in a place as far north as we could ever have hoped to get. Some of us stayed by the ship to build houses and bring our provisions ashore, and others went with Mylius to shoot walruses for dogs' meat, while others again were out mapping the country. The latter work was carried out under the direction of Captain Koch, of the Danish Army.

In the autumn the caches were laid out. It did not take long, for the going was easy on the smooth ice. Then Christmas came, breaking the monotony of the long, dark winter. The sun had left us more than a month ago, and only the silvery moon and the twinkling stars were shedding their light over the endless white plains, while the outlines of the far-away mountains loomed indistinct and hazy. Christmas night! The thoughts of all on board went back to their homes—to mother and all the dear ones. No one knew if he was ever going to see them again—in fact three of us never did—and from the mess sounded the dear old tunes, sad and sweet, which Bistrup, the mate, and Friis, the artist, were playing on the piano and the mandoline. Suddenly the watchman sang out. The dogs had for some time been barking in a peculiar manner, which we called the "bear-bark," and when the watchman came on deck, the bear was quite near. In the faint moonshine he could see it quite clearly. He fired, and a furious roar told him that the bear had been hit. We saw it running away with all the dogs at its heels, but it had got several miles away from the ship before the Eskimo Tobias reached it and put in the finishing shot.

Before long the sun again rose over the horizon, the glorious sun, so eagerly welcomed by all of us. We little thought then, that it was the last time it was to rise for three among us. A hundred dogs and ten sledges went off, far away to the northern terminus of Greenland. Between 78° and 79° they had to pass over the hummocky inland-ice, where the sledges continually broke down. Brönlund and Tobias, the two Eskimo drivers, rode foremost, and at Lambert Sound (79°) they went about twenty miles with empty sledges up among the mountains to shoot musk-oxen, but they only found a few hares. Then the sledges had some very difficult work in rounding a promontory, Mount Mallemuk (about 80° N.). The pack-ice here came quite close to the precipitous coast, and on account of the strong current the ice was very loose. But the temperature was 22° below zero Fahrenheit, and after a calm night the new ice was strong enough to bear, and they were able to continue their course northward.

At this point four sledges were sent home. They were to map the coast between Mount Mallemuk and the ship's quarters, and were for-

tunate enough to shoot several bears. Six sledges remained bound for the far north. The caches were now very small, the sledges held only a scanty supply of provisions, and the dogs were tired. Still the men never hesitated but continued to penetrate farther north. They had taken counsel together and come to the conclusion that they would rather risk their lives than return to the ship without accomplishing their object. One sunny afternoon in April, they sat in their tents, looking out over the white masses of eternal snow on to where the sea and inland-ice met. No land was visible, only snow and ice wherever they turned their eyes. They sat smoking their pipes, with a cup of hot coffee before them, but few words were uttered—they were men who had taken their decision.

The Bear on Board.

From right to left—Artist Friis, Sailor Peter, Eskimo Hendrik, Mate Bistrup, Second Meteorologist Frenchen, Geologist Jarner.

[Thostrup, Phot.

Farther and farther north they went. Mylius Erichsen and Koch the leaders of the two sledge divisions, talked matters over. They were surprised that the coast trended so far east; they had expected it to go west. And the surprise was anything but pleasant as the distance they had to traverse was thus considerably increased. At the beginning of May they were at last at the north-eastern corner of Greenland. The coast there bent west and south-west, and Mylius Erichsen, Lieut. Hagen,

and the Eskimo Brönlund decided to explore the fjords and sounds in that direction, while Koch, the artist Bertelsen, and the Eskimo Tobias continued their march north, passing Peary's Cairn. The large snowclad mountains in the interior of Peary Land made a delightful sight to the weary travellers. The dogs were quite incapable of dragging the sledges ; they had eaten nothing but patent food for two weeks, and their strength was waning fast. Koch drove them forward with the whip, for they must cross Peary Channel ; in Peary Land on the other side they were sure to find musk-oxen. Over they got, and luck was with them. Within a very short time they had shot several musk-oxen, and some small calves were torn to pieces by the ravenous dogs. The wolves howled in the night and followed the sledges, but now everything was well again and the dogs in good trim ; having been able to eat as much as they liked for two days they had gorged themselves till they had almost devoured their own weight of meat.

A few days later they unfurled the Danish colours on a little hill near Cape Bridgman (83½° N.). To the south lay the beautiful Peary Land and King Frederick VIII. Land, and to the north, over the endless white pack-ice, the road to the North Pole, the elusive North Pole which has drawn to their doom so many explorers. They had reached their goal at last. Koch took a theodolite and did some very exact measuring work ; Bertelsen made some splendid sketches, and Tobias enjoyed a day's rest after forty days of unceasing toil. Then commenced the return journey. One morning, after they had spent the night on Hyde Fjord, Bertelsen's dogs were nowhere to be found. For six miles Koch and Bertelsen followed the track of the six dogs up among the mountains. They could see that the dogs had been in pursuit of a musk-ox, but all at once the tracks of dogs and musk-ox alike disappeared at the edge of a precipice fifteen hundred feet deep. That they had fallen down this precipice was beyond all doubt, and that they had all been smashed to pieces seemed, unfortunately, also beyond doubt.

Many sad thoughts passed through the minds of the two men while they retraced their steps towards the tent. The loss of the six dogs was a severe calamity in their present situation, more than two thousand miles away from the ship. They resolved to stay where they were for that day and night, and great was their surprise next morning when "Petersen," the best and strongest of the six lost dogs, came running into the tent. He looked quite fat and well, and evidently had not only survived a fall of fifteen hundred feet, but after the first shock had eaten his fill of the dead musk-ox—and possibly also of his less fortunate comrades. So wonderful are the things that can happen on an Arctic sledge trip ! And in this case it was really very fortunate for the little

Mount Mallemuk 80° 13′ N.

Mylius Erichsen and Koch Northward bound.

[Wegener, Phot.

party that Petersen turned up again, as otherwise they might never have been able to reach the ship.

The homeward journey was continued, and on May 28th, by pure accident, they met Mylius Erichsen and his two companions at Cape Rigsdagen, at the entrance to Denmark Fjord. Since the two parties had separated Mylius Erichsen had mapped the latter fjord, a wide and deep inlet with beautiful mountainous shores, but he was unwilling to return without having explored the twenty miles or so of unknown coast lying to the west, between Cape Rigsdagen and Peary Cairn at Cape Glacier. So Koch returned alone, and after many narrow escapes he and his party reached the *Danmark* in safety on June 24th.

On board the *Danmark* we waited and waited, but our three missing comrades did not arrive. The summer had begun; in every valley the rivers were jumping along, and progress was equally impossible by land or by sea, where the ice was broken though no open water was to be seen. During the summer we hunted seals and walruses, and as soon as the ice was firm enough a rescue sledge-party was sent out to look for Mylius Erichsen and his two companions. This ice-trip was perhaps the most difficult of all the sledge-trips we made. Thostrup, the leader, was a hardy, clever man, who forced the sledges on with all his energy, but Nature was adverse. The ice was broken by large crevasses, in some cases several hundreds of feet wide. More than once a dog fell into one of these crevasses and had to be killed, and once or twice the sledges and the men came near to sharing their fate. When at last they reached Mount Mallemuk they found open water and had to return without having observed any trace of our missing commander.

We were now very sad and anxious, fearing that the worst had happened, but we had done all that human strength and skill could do, and for the present could only watch and wait. The dark days had set in again, the cold was severe, storms were raging, the dogs were exhausted, and we had no food to give them. In the course of the winter we had to shoot the greater part of them, only twenty-eight being kept alive for the final search for our lost comrades. This search was begun in the early spring of 1908, and it was carried on by Koch and the Eskimo Tobias, the two men who finally found the body of Brönlund.

During all this time we could not be idle. We worked as hard as we could, perhaps all the harder because we felt that only thus could we rightly honour the three who had ventured so far north and had never returned. We made a number of sledge trips, the men drawing the sledges themselves and carrying on research work in these unknown regions with the most scrupulous care. Thus we examined the border of the inland-ice and found a great Nuna land, a big island in the eternal inland-ice. We likewise found fossils and flowers and traces of bears and

foxes, looking very much out of place amid their desolate surroundings. Like other parts of Greenland this region must once have enjoyed a much warmer climate, and we ascertained that the Eskimos in former days lived everywhere along the coast, as well as in the interior by the borders of some big lakes, where they caught salmon. Wegener, the meteorologist, sent up more than a hundred kites and balloons, in order to collect information about the atmospheric conditions, which were very changeable. During the winter we might one day experience 70 degrees of frost, and the next perhaps the temperature would rise above freezing point. The artists made numerous sketches of the country, and besides these sketches we secured more than fifteen hundred photographs;

Summer in Greenland. King Frederick VIII. Land.

[Wegener, Phot.

photographs of the ice, the picturesque valleys, the grazing musk-ox, the polar bear lurking for seals, the dainty little snow-hare, and many other of the animals of that splendid country. Manniche, the ornithologist, brought home a very fine collection of Arctic birds, perhaps one of the finest ever seen.

While thus we were trying to master the laws and conditions of Nature in the neighbourhood of the ship, the rescue party were laboriously making their way towards the place where they learned the full details of the sad catastrophe which deprived us of our leader and two others of our comrades. As mentioned above they were last seen in Peary Channel, where Mylius Erichsen and Koch said good-bye to each other

on May 28th, 1907. From the diary of Brönlund which we found on his body at the depôt, we now know that they had gone into a big fjord, named Hagen Fjord. Afterwards, having built a cairn at Cape Glacier, they crossed Peary Channel and, following the coast of Peary Land, mapped a new fjord, called Brönlund Fjord. But in every respect fortune was against them. They met no musk-oxen, only an occasional snow-hare, which of course was of very little use for feeding three men and twenty-eight dogs. The arrival of summer prevented their getting back to the ship. Under the sun's rays the snow gradually became quite soft and loose, and it was impossible to move. They had to stop in Denmark Fjord, a thousand miles from the ship's quarters, confined

In Memory of the Dead.

[Wegener, Phot.

the whole time to a very small district. To escape from this district was impossible, owing to the open rivers on shore and the broken ice at sea, and thus there was nothing left for them to do, but to stay and—starve. One day Brönlund shot a hare and brought it back to the tent, where they ate it raw. But for many days they had nothing at all to eat, and they went nearly mad with hunger. Brönlund at the time wrote in his diary : " No game, no foot-gear, and more than a thousand miles to the ship. Our prospects are bad indeed."

At first they tried to spare their dogs in order to keep them alive for the autumn travelling. Their constant hope was to get some musk-oxen with which to feed the dogs, but as the days went by, and they saw no musk-oxen, they were obliged to shoot the faithful animals, one by one.

We can imagine the feelings of the three men, when driven to this last resource. In September they first tried to reach the bottom of Denmark Fjord in order to get some musk-oxen, but they found none, and only further exhausted their strength in the vain search. We must realise this last point fully, as we are otherwise unable to understand how it was that they only reached the very bottom of the fjord on October 19th. Then began the last desperate attempt to reach the ship by crossing the inland-ice instead of by retracing their steps along the coast. On the very day that they started our rescue-party arrived at Mount Mallemuk.

Only those who have gone through a similar experience can quite comprehend the horror of this last march, as they plodded bare-footed, in a temperature many degrees below freezing, over ice and snow, amid the gathering darkness. For thirty days these men walked on, with only one sledge and four feeble dogs, covering a distance of a hundred and fifty miles, or five miles a day. Every morning they must have had only one wish, one craving—the craving for sleep, sleep and rest for ever. And yet they crept out of their worn sleeping-bags and faced a new day, because they *would* continue, till they reached a place, where there was some probability of our finding their bodies and Hagen's fine map sketches.

Ten miles from the depôt on Lambert Land, Mylius Erichsen and Hagen died. Only Brönlund reached the depôt, leaving his dead comrades behind and creeping along on his sore feet alone in the dim moonlight. When he arrived he placed Hagen's sketches and his own last report so that the search-party could not fail to find them, and then, wrapping himself up in his furs, lay down and died.

Here Koch and Tobias found him in the spring of 1908, and here they buried him. "Good-bye, Brönlund, you have been a good comrade!" were Koch's last words to him, and he deserved them. The report which was found on his body ended with the following words :—

"Perished on 79° Fjord after attempt to go back over the inland-ice in month of November. Arrived here by waning moonlight. Impossible to go on on account of feet being frozen, also on account of the darkness. Bodies of comrades to be found in the middle of Fjord below glacier. Hagen died on November 15. Mylius about 10 days later.—Jorgen Brönlund."

Travel in the Balkans.*

By M. EDITH DURHAM.

I HAVE been asked to write on the Balkans as a field for travel. The subject rather baffles me. Here is the traveller—there is the Balkan Peninsula. As the mountain won't go to Mahomed, Mahomed must go to the mountain. Nowadays the traveller can look up all the trains in a time-table, and when he arrives he had far better follow his own nose than mine. We probably do not hunt the same trails. If he has no trail to hunt and cannot shift for himself, he had better go to the Earl's Court Exhibition, or to Venice on a Cook's tour.

I have passed from two to seven months a year in the Balkan Peninsula for the past nine years, and have worked through Montenegro, Servia, Bosnia, the Herzegovina, the Sandjak of Novi Bazar, most of Macedonia, and almost the whole of Albania, largely on foot and on horseback. I have met no great difficulties—save rough tracks and fare—and have never had an accident; and I have found friends everywhere. The difficulties of Balkan travel have often been grossly exaggerated by travellers who wish to pose as heroes because they have spent a fortnight —or twenty-four hours, say—in Montenegro. Notes as to my own methods of travel are all that I can supply, with the understanding that I take no responsibility as to how they will succeed with anyone else.

Up-country, off the track, travel is rough work and should not be attempted straight off. The Near East requires studying. People really desiring to understand its racial problems, or its geography, geology, etc., should begin in the more civilised districts, and proceed by degrees to the wilds. The more languages one can speak the better, and one or more Balkan languages should be learnt. I started Servian on my first tour, and am picking up Albanian. Servian is, perhaps, the most useful Balkan language, as it enables one to speak with the natives of Dalmatia, Montenegro, Servia, Bosnia, the Herzegovina, and the Sandjak of Novi Bazar, and is spoken far into Turkish territory. Bulgarian is very closely allied, and Bulgars can understand Serb well enough. It practically takes one over the whole of the north of the peninsula, and also through Croatia. The only part where it fails is in North Albania. In the south of the peninsula Greek is a pass language.

There are two quick routes to the Balkan Peninsula. One leads

* Written from Scutari in Albania, November 9th, 1908.

through Vienna and Budapest to Belgrade ; this is the best route for Servia and Bulgaria, and for Salonika and all Turkish territory between the Serb frontier and the Ægean. The other route is *via* Bâle, Milan, and Trieste (or Fiume), and thence by steamer. The Austrian Lloyd and Hungaro-Croatian boats are well served, and second-class is good enough for anyone. This is the route for Dalmatia (also Bosnia and the Herzegovina), Montenegro, and Albania. Trieste and Fiume can be reached *via* Vienna, but that route is dearer and no quicker.

BOSNIA AND THE HERZEGOVINA.

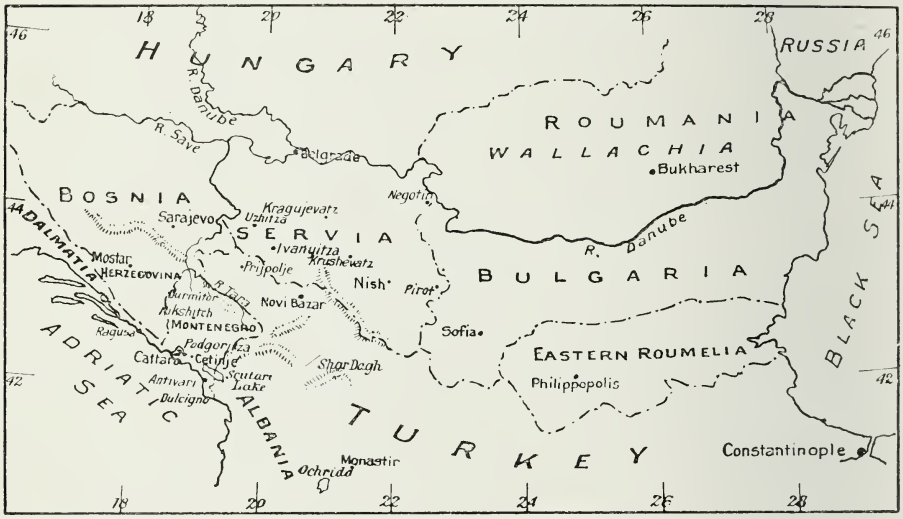
The Dalmatian coast, though in the past eight years it has lost much of its costume and picturesqueness, and is often swarmed with trippers, is still of interest. But it has been so long under foreign rule that I will not include it in Balkan travel. Of Bosnia and the Herzegovina it is impossible at this moment to speak at length, as the annexation which has just taken place will cause different travel rules to be put in force, and for a time they will most probably be severe. Difficulties of travel there I found only those made by the Austrian officials, who are particularly afraid of a Servian-speaking tourist, and go through great antics to prevent his communicating directly with the natives—knowing well what the natives will say. Previous to annexation, it was necessary to apply through the Consulate for permission to travel in the interior, and enquiries should be made at the Consulate at Sarajevo before starting. (It may here be remarked that a passport, properly in order, should always be carried in the Near East.) Bosnia and the Herzegovina are best visited from Ragusa, an extremely pretty little town. Travelling and hotels are cheap. Those who have seen no Balkan land will find much to interest them, and the scenery is magnificent. I give no routes, as the country is well mapped ; roads and hotels exist everywhere, and guide books (of the parts arranged for tourists) can be bought in Sarajevo.

SERVIA.

Either Servia or Montenegro are good countries to begin on. Both are absolutely safe, and it is foolish to carry weapons. Servia I recommend as a little-known, easily reached, and very pretty land, full of most friendly inhabitants. Belgrade is reached by rail. A passport is required, and should be *visé* for Servia before leaving London. In Belgrade a German, or even English-speaking guide can be found, and those who do not know Servians may prefer to have one. I have never had one myself. A traveller who plunges boldly without a guide into the land will find in every large town someone who speaks German, and who will befriend him. The villages are pure Servian. A bicycle tour can be

made on the main roads, which are very fair. From Belgrade delightful steamboat trips can be made on the Save and the Danube. Almost every village is of interest, with its local life, the peasant costumes, the fairs, and the feast days, attended by gipsy music and dancing. Be sure to ascertain the dates of the local fairs and feasts; they are most picturesque.

Nish in the centre, and Pirot, in South Servia, can be reached by rail. Nish is a good starting-point for a driving tour, and lies in the heart of a fine and fertile district. Pirot should be visited for its local hand-woven carpet industry, which is both original and beautiful, and deserves to be better known. Kragujevatz, the former capital, can also be reached by rail; all other places by carriage or diligence. The country is very



Sketch Map of the Balkan States.

beautiful; rich and undulating, and well watered in the north-west, with pasture and oak trees, and post and rail fences that recall Devonshire. The Serb peasant owns his own land, and—for his wants are simple—is frequently very well-off. The pine and beech-forested mountains of the south-west—Uzhitza and Ivanyitza—should on no account be missed. Travelling is not at all fatiguing. The journey from one town to another is a pleasant day's drive. A good lunch, with plenty of excellent Devonshire cream, here called "kaimak," is always to be found at a half-way inn, and it has the advantage of being very cheap. You can eat well for a franc.

To the student of art and architecture the old pre-Turkish monasteries

and churches are of high interest. Many contain frescoes which, though sadly damaged, are very instructive examples of Byzantine art. The beautiful white marble church of Studenitza, in a wooded valley in South Servia, the coronation church of the Servian kings at Zhitza, near Kraljevo, and Tsar Lazar's church at Krushevatz, are to be highly recommended.

The east side of the country—interesting but not so picturesque—

A Mule Caravan in the Balkans.

can be visited from Nish through Knazhevatz, Zajchar, and Negotin, whence it is but a short drive to the Danube, and the traveller can return by steamer over the Iron Gates—great reefs of rock that lie across the Danube in a wide and shallow part. Beyond is the beautiful defile of Kazan. Or the tour can be reversed, and the river descended from Belgrade. But in the Balkans time does not count, and the traveller had better realise it. He cannot make a more fatal error than "to try to hustle the East."

Carriages in Servia are cheap—especially if one on a return journey be found; and the traveller who is not proud can nearly always find a commercial traveller who will share one with him (Why are commercial travellers here never English?) and can then travel very cheaply, and pick up much local information. The towns all have decent hotels. In the village inns be sure to secure a room for yourself. There are often six beds in a room, and the landlord offers you one. They are usually clean.

MONTENEGRO.

Montenegro provides more strenuous work unless you keep to the carriage roads. The mountains are extremely beautiful, and well worth exploring, and the country is absolutely safe. It is entered best by Cattaro, an Austrian port, whence an eight hours' drive takes one to Cetinje, the capital. Nine, or at the outside ten, florins is enough for the drive. Half-way, a halt is made at Njegushi, the first Montenegrin village reached. Here there is a decent inn, and the best guide in Montenegro, Krsto Pejovich, a man who speaks a little Italian, knows every track in the country, and is thoroughly reliable. Anyone wishing to tour the mountains cannot do better than take him. At Cetinje the Minister for Foreign Affairs or his secretary should be visited if a long tour in the interior is intended. For merely driving to Podgoritza (Hotel Europa) and Nikshitch (Hotel America) this is not necessary.

The tracks on the Herzegovinian side of the country are very bad for the most part, loose stone and rock, often unrideable. I always wear native raw-hide sandals—"opanka"; they give a grip nothing else affords, and are light and easy. Two pairs of socks, or socks and a foot-bandage, should be worn with them. You can get a pair made to fit in Njegushi for five or six shillings, and they are worth a three-guinea pair of Alpine boots. Those who wish to ride should buy a saddle. The best plan is to have a native saddle, such as is sold in Scutari in Albania, Monastir, or Salonika. The Turkish gendarmerie pattern is very good, with crupper and breast strap (most necessary in mountain work), and pockets and rings for saddle-bags. The native saddle fits the native horses, and the horseboys understand it. I have a gendarmerie saddle myself. Up-country nothing can be found, either in Montenegro or in Turkish territory, but the wooden pack-saddle, which is most fatiguing—though possible at a pinch. Always look to the girths and stirrup-leathers yourself. Your life may depend on the former.

I never take more luggage than will go in two waterproof saddle-bags, which my horse can carry as well as myself. If it is winter, or you wish to sleep out in summer, a Scotch plaid rolled in a waterproof sheet will strap on behind the saddle. "Two off and one on" of every garment, and a few extra stockings and handkerchiefs are ample for a couple of

months, and even more. I take as well a note-book, a sketch-book, a fountain pen (ink tabloids), an extra pair of "opanka," or boots, a few ordinary remedies in tabloid form, a roller bandage and antiseptic dressing, leather bootlaces (invaluable for mending saddlery and harness), and a large lock-back clasp knife. As portable food, I have found Maggi's soup in tubes by far the most practical, and have eaten it raw when hard pressed for food. This seldom occurs now in Montenegro. An inn of some sort exists in every village, and supplies boiled mutton, eggs, milk, good bread, sheep-cheese, coffee, wine, and "slivovitza" (plum brandy), the national drink. This is generally offered on arriving, and one should pay for some in return. They pay for King Edward's health and you for Prince Nikola's. It is not by any means always possible to get a room to oneself. I have often been many days without getting my clothes off. This holds good for a large part of the Balkan Peninsula. You wash your face on the doorstep, and the populace always enjoys the sight of a toothbrush in action.

Valley in the Southern Rhodope.

A good route for the mountains is from Podgoritza to Kolashin and Andriyevitza, visiting the interesting old thirteenth century monastery of Morachka on the way. From Andriyevitza the ascent can be made of Kum Vasoyevich, one of Montenegro's highest points. The last part is rocky, and very difficult. I did not do it. As far as the shoulder the ascent is easy, and the view over the mountains of Albania is superb. If benighted on the heights the night can be passed in a shepherd's hut, and an equivalent for what has been eaten—usually milk and maize porridge—should be given to the man's wife or children.

For the kindness and goodwill with which hospitality is offered nothing can pay.

Zhabljak on Durmitor can be reached from Kolashin, but the track is very bad. Durmitor, Montenegro's highest mountain, is most easily reached from Nikshitch, and the interesting monastery of Ostrog can be visited on the way. Nikshitch (Hotel America) to Zhabljak, through Shavnik, is a two days' journey over fine country, and a fair track. Zhabljak is a wooden Alpine village on a shoulder of Durmitor, and near it lies Crno Jezero (the Black Lake) in a pine forest. All this upland is magnificent. The traveller can find plenty of routes for himself when once started.

The Sandjak of Novi Bazar can be entered from here. The frontier river Tara is crossed on three planks and a cord—when not too torrential. You cannot take a horse over, but must find one on the other side. To travel in the Sandjak a Turkish *visé* for Plevlje (Tashlidje) must be obtained either in London or Cetinje, and leave to cross the frontier must be asked of the Kapetan of Zhabljak. This tour is, as a rule, quite safe I believe, the track to Plevlje fairly decent, and through fine forest in parts. There is a good Servian inn at Plevlje. The tour can be extended to Prijepolje and the monastery of Miloshevo, and as much farther as the local authorities permit. The Lake of Scutari affords fishing and wild-fowl shooting. Permission should be asked at Cetinje. Antivari and Dulcigno, on the coast, are well worth visiting, and present no difficulties.

TURKISH TERRITORY.

Travelling in Turkish territory is often rough work. Whether it is dangerous depends largely on the politics of the day, and also on the traveller and his man. Personally I have crossed, and also stayed in, almost all the worst-reputed parts. I never carry arms, have even travelled with an unarmed man, and seldom have more than one with a revolver—and I have had no adventures for the story books. I cannot guarantee that others will have the same luck. One must know the people, and "take the local temperature;" it fluctuates like a fever patient's. If you hit the right moment, you can get through, even though it is "touch and go." But no one should try such a district on his first Balkan tour. If he plays the fool, though he may get through himself, his man may be paid out afterwards.

A few rules are certain: never lose your temper with the natives; conform to all local usages; and never show fear, even when you know you are in a tight place. Be friendly, and amuse the company whenever you can. Even shadows of animals on the walls made by one's hands go a long way. If the children are delighted, the father is affable. Don't travel with a lot of baggage. They then believe you are related to a king

or emperor, and are come to "make politics." I have been through a difficult piece with no luggage at all: started with soap, comb, and toothbrush and lost them the first day. Even in the almost unmapped (and quite faultily mapped) parts of North Albania, in the Moslem districts, the "one touch of human nature" can be found, but you must study the native temperament. To take notes publicly, or to attempt photography or a survey in the Djakova, Gusinje, or Ljuma Districts—fanatically Moslem—is to court disaster.

All the Roman Catholic tribes of North Albania can be visited with perfect safety. The tracks are mostly vile, and the work severe, but of great interest, while the scenery is superb. A good and well-known guide is required, and the traveller must conform to the customs of the country, and on no account go alone. The tribes—though most hospitable to a guest—require, as do Londoners, that he shall be properly introduced. Marko Shantoya, of Scutari in Albania (the starting-point for such a tour), I can thoroughly recommend. He speaks Italian and German, and is an excellent camp cook. A guide has also to be taken from tribe to tribe. Albanian is the only language spoken by the people. The native priests and Franciscans, however, all speak either German or Italian as well. They are very hospitable to travellers, and their kindness to myself I cannot exaggerate. Travellers thus received should remember they are guests, and not—as some have done—commit the gross rudeness of giving orders as in a hotel. The country is bitterly poor, and on leaving a suitable gift should be offered—if in no other form, as a contribution to the poor of the parish.

An Albanian Battalion.

Shelter can always be found in a native house. The poorest is ready to give "bread, salt, and my heart," and the spirit in which the hospitality is offered covers its defects. In summer one can sleep out of doors very comfortably on the ground in a plaid, with

a saddle as pillow. Hay, or fern, can generally be obtained, and make a good bed.

South Albania can be safely visited. There is a lot of wild-pig shooting to be had in parts. For visiting all Turkish inland towns a " teskereh " is needed. This is obtained through the British Consul. A traveller without a teskereh is liable to arrest at the first town at which he arrives, and having wilfully broken the law he is a great nuisance to the Consul, and has no right to expect his help. For the semi-independent North Albanian tribes no teskereh is required, and no Government escort. It would cause one, indeed, to be very badly received, as the Christian

Village in the Rhodope Mcuntains.

tribes object strongly to Turkish soldiers. In all other districts the Turkish Government usually provides an escort, varying from a gendarme to twenty or more soldiers and an officer. I have always refused a military escort myself, and only had one forced on me once, and then I got rid of it halfway. As a rule, an escort is sent solely to prevent a traveller from learning the truth ; he is allowed to see nothing. The traveller who takes one must remember that though it is given " free " it eats at the expense of the unhappy villagers, and should pay them. The escort I had was months behindhand in pay, and expected " bakshish " as well. I speak,

however, only of the old régime. A couple of gendarmes, or even one man, answers all purposes, and shows you have Government leave to travel. It is very rarely that a stranger is attacked in Albania. A great deal of shooting takes place there, but it is mostly in connection with local "affairs of honour," conducted according to rule, like German duelling.

The really dangerous territories are those for which several races are struggling. The Bulgarians in Central Macedonia have a bad record. They held Miss Stone, the American missionary, up to ransom for many months, captured Mr. Wills and cut his ears off, tried to capture Colonel Eliot—and got the worst of it—and threatened me. No other Balkan people have so black a list. I consider them the most unreliable of the Balkan people. In Bulgaria itself, however, travelling is as safe and easy as in Servia, and there are many places of interest.

Just now the new constitution has produced a lull in the fought-for districts. It is impossible to say how long it will last. The lakes of Ochrida and Presba (formerly called the Albanian Lakes, and now claimed by nearly everyone !) are in beauty second to none in Europe. It is worth risking something to see them. They are easily reached from Monastir, where the state of the country can be ascertained. The agent of the British and Foreign Bible Society can often supply a good English-speaking dragoman. Monasteries and churches—many very early ones—of great interest are scattered all through these lands. As to Kosovo Plain and Ipek, Djakovo, and such places, there is just now a lull there too. They have until now been practically closed to travellers for many years. I have visited them all, some of them five years ago, and without permission, at my own risk. But it was very risky, and a man would probably not have got through. Shooting women is no more sport than squashing blackbeetles, and is "not in the game"—and there are no Bulgars there to stick one up to ransom.

My parting advice is : travel as light as possible, for every ounce counts. Float like a cork on circumstances. Change your route and go off wherever you hear of anything interesting. A cast-iron plan is a great mistake. It isn't till you are out there that you know what there is to see. Do not be bullied, but never quarrel. On a steep mountain zig-zag that must be taken on foot, never allow your horse to be above you—he may send down a shower of loose rock that is most dangerous. Do not ride him round a very narrow ledge. The horses are very sure-footed but you may—as I once did—have your horse down under you on a ledge so narrow that dismounting is impossible, with a hundred feet or more to fall. The wait while he gets up is most unpleasant. Cross the ledge first yourself, as the horse usually breaks off a piece with his last hind leg. See that the horse-boy has spare horseshoes and nails, if you are on a several days' tour. And I wish you as much luck as I have had myself.

A Naturalist's Trip to New Guinea.

By CHARLES BETHUNE HORSBRUGH.

To the big-game hunter, British New Guinea—or Papua, as it is officially styled since it came under the direct government of the Australian Commonwealth—offers no attractions. No large animals menace human life and property, and tempt the sportsman to test his marksmanship and knowledge of hunting lore ; while the difficulties of travel and the fever-laden atmosphere of the gloomy jungle are quite sufficient to deter the ordinary tourist from visiting this remote tropical dependency. To the naturalist, however, New Guinea is a storehouse of well-nigh inexhaustible treasures. My purpose in visiting, in the early months of this year (1908), the western foothills of the Owen Stanley range was to bring home alive as many varieties as I could of the bird-life of the country, more especially the rare birds of Paradise. Sir William Ingram most liberally provided all the necessary funds for the expedition, and the Zoological Society furnished me with many useful introductions to Government officials in Australia and New Guinea, who, in turn, did all they could to further the objects of the expedition. Without such assistance I could have accomplished little. As it was, the unfailing courtesy and invaluable help accorded me by the Acting Administrator, His Excellency Judge Murray, and other members of the Papuan Civil Service, made it possible to secure very satisfactory results.

Arriving at Brisbane early in February, I there met Mr. Wilfred Stalker, who also was to take part in the expedition. His previous knowledge of New Guinea, in which he had spent about three years, of camp-life generally, and of the management of natives, soon caused me to appreciate highly not only his genial companionship, but his resourcefulness in emergencies.

Some hours before we dropped anchor at Port Moresby we sighted the New Guinea coast, and observed ridge after ridge of the Owen Stanley range and its offshoots, stretching for many miles inland. Many of its spurs were hidden in the clouds, but I believe we were fortunate enough to get a glimpse of Mount Albert Edward, towering 13,230 feet high. The entrance to Port Moresby is a difficult one for large vessels, on account of the many reefs. The town lies within a land-locked bay, and on the north side of a small promontory. The foothills and ranges inland are clothed with dense vegetation, but here and there on the undulating slopes open patches may be observed covered with long rank grass, which at that

season of the year was beautifully green and refreshing to the eye. Port Moresby is the seat of government, and the white inhabitants number about seventy. All the houses are raised from the ground on poles, and are built of wood and corrugated iron. From May to November the temperature usually averages about 79°, and during this period (which is known as the "south-east season") a continuous wind blows from the south-east and greatly lessens the number of mosquitoes. The "north-west season" occupies the remainder of the year, when the temperature increases to about 81°, and mosquitoes become a curse.

Landing at Port Moresby on February 18th, we were busily engaged for ten days in selecting trade goods, purchasing additional food supplies for ourselves and our carriers, and otherwise putting the finishing touches to our arrangements. One of the first things was to engage two or three "boys" to accompany us as interpreters, cooks, and general helps, but it was a severe test of patience. In the puzzling "pigeon English" in use there we would ask likely recruits: "You go walk along bush along white man?" and the native would then put us through a *viva-voce* examination as to the the duration of the engagement, the amount of pay, and a host of other details. Finally, when our destination was mentioned, they would furnish excuses galore, and the whole business had to be repeated with others. Our intended route lay within some miles of a spot were a native policeman had been killed and eaten some months previous, hence the reluctance to join our expedition and risk their "fuzzy-wuzzy" heads. Eventually, after much hard bargaining and some presents for luck and goodwill, we signed on three youths for a six months' engagement, shortly afterwards having to dismiss the eldest as he lacked sufficiently good eyesight for jungle travel. The courage of

Ceremonial Head Dresses of New Guinea Natives.

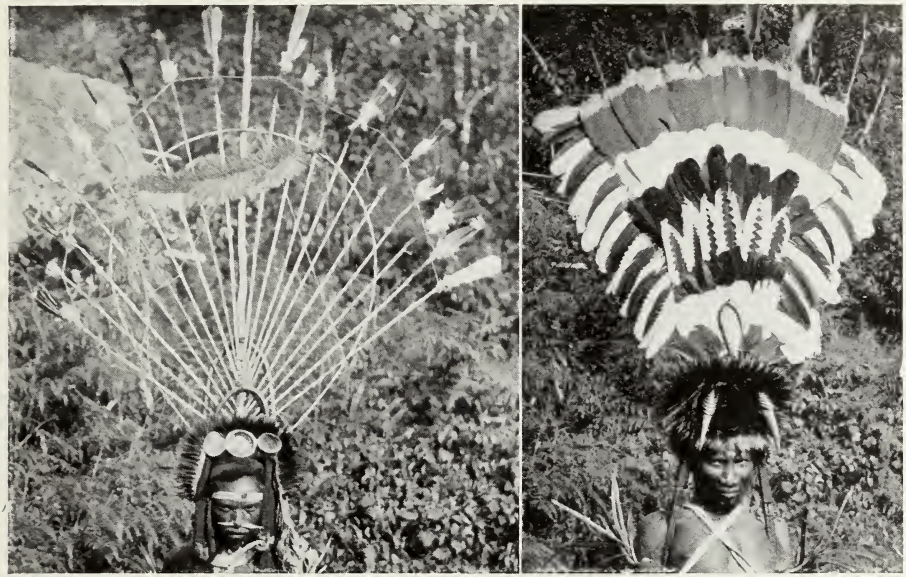
another oozed away on our arrival at Yule Island, where the native police amused themselves by "pulling his leg" and relating gruesome details about their comrade's death; so that he actually came and offered us money to let him return to his village, which we did. Heni-Keni, the last of the trio, bravely overcame his fears, and although he had "done time" for petty theft, he served us well all through the expedition.

We were not sorry to leave Port Moresby for Yule Island, which lies to the north, about seventy miles distant. The vessel on which we took passage was a small coasting schooner of twenty-five tons called the *Lotus*, and the voyage was decidedly monotonous. What with calm spells and contrary winds it was not until the fifth day instead of on the second that we landed on the island, but once there we were welcomed most hospitably by Mr. N. H. Bowden, the Resident Magistrate, to his bungalow, and the police under his charge, with prisoners from the gaol, quickly unloaded the *Lotus* of our luggage and stores. The headquarters of the Roman Catholic Mission Society are situated on the southern point of the island, whilst the London Missionary Society's station lies opposite on the mainland. We visited both, and received the greatest help and kindness, particularly from the members of the former, who have a most excellent and beautiful estate, on which they cultivate vegetable gardens and breed cattle, besides undertaking the useful work of their calling.

Map to illustrate Mr. C. B. Horsbrugh's Expedition to British New Guinea.

We stayed with our kind host about a week, passing the time in butterfly collecting, unpacking boxes and dividing their contents into convenient loads for porterage, and many other preparations for our start inland. After these matters had been seen to we took a day off to accompany Mr. Bowden to Bioto, where judicial business required his presence.

This village is situated about nine miles from Yule Island, on one of the numerous tributaries of the Ethel River, which latter flows into Hall Sound. Making an early start in the whale-boat, we sailed across the sound and entered a broad but shallow river, the banks of which were hidden in impenetrable mango swamps and dense undergrowth. Frequently we amused ourselves in shooting at crocodiles, which we generally missed, until I killed one at the entrance to the tributary up which we had to proceed. The scenery up this grand river was exceedingly fine, and the



Ceremonial Head Dresses.

silence, occasionally broken by the cry of some heron or wader, was most impressive, recalling Shelley's lines :—

> "The silence there by such a chain was bound
> That even the busy woodpecker made busy by her sound
> The inviolable quietness."

For some hours after our arrival at Bioto the police who formed our crew were busy collecting prisoners and a few witnesses for cases pending settlement, and we then proceeded to return. When our intentions were understood by the villagers a weird scene occurred, to which it is difficult to do justice. They seemed to imagine that we were a cruel press-gang, and that their beloved relatives and friends were doomed to transportation,

Ready to Start from Yule Island.

if not death, and indulged in a piteous demonstration of grief and lamentation. Of course, all the children copied the example of their elders; copious tears flowed from all faces, and the numerous pariah dogs added their protestations to the increasing din. The police treated it all as an amusing part of the day's work, and huddled their unfortunate charges into the whale-boat amidst renewed outbursts of grief, and away we started down the creek. Very few crocodiles were seen on the homeward trip, as the sun was rapidly sinking, but one of the police observed a cuscus feeding in some bushes, and when the boat was steered in to the bank the prisoners quite forgot their recent troubles in the excitement attending its capture, and scrambled through the reeds to lend assistance. The policemen, failing to shake the creature off the branches, put four Lee-Enfield bullets into it, quite spoiling it as a specimen. This animal is one of the Papuan marsupials, and is very much like an opossum, having a long prehensile tail, and feeding on leaves and young shoots.

New Guinea Head Dress.

We reached our bungalow late that evening, and the prisoners and witnesses were made happy with tobacco and food for the night in the gaol. Several returned with us on our next visit to Bioto a few days later, and acted as our porters. By that time—the middle of March—we had signed on half-a-dozen "boys" as gun-bearers and personal attendants, and some canoes having arrived from Bioto, we loaded them up with our luggage and impedimenta, and they then set sail across the sound. Stalker and I followed about three days later in the whale boat, which the Magistrate kindly placed at our disposal, and we again ascended the Ethel River. Quick travelling brought us before the morning was over to our destination, where the natives had stored our boxes in a large empty house. The village swarmed with bloodthirsty mosquitoes, so we decided to move on the next day, and made preparations for an early

start. Just as we were falling off to sleep, however, Heni-Keni was brought in by his companions in a state of collapse, having been bitten by a snake. It may possibly have been only a spider, but we judged it best to treat him for the former, and Stalker ligatured the leg, and incised the wound, inserting crude permanganate of potash, and dosing the patient with a little brandy. The poor fellow suffered agonies, moaning and weeping bitterly most of the night, but he had sufficiently recovered

Ourselves and Our Followers.

by morning to limp along the track. He greatly desired to return home with one of the other "boys," but we rallied him on his fears, and he stayed on, though at his next meeting with a long green snake, a day or so later, he was very excited, approaching it very gingerly even after I had shot it.

The missionaries were away at the time from Bioto, but I had the Government's permission to use a pony which was kept there, and on this I led the advance to Epa, Stalker bringing up the rear. Recent rains

had flooded the lowland track, and several large trees had fallen across it, over which we had to scramble, or follow a tortuous course round the spreading branches. Frequently the overhanging tangle of creepers forced me to dismount, and my clothes and flesh were sadly torn by the ubiquitous lawyer-cane tendrils, which seemed to be all thorns and no foliage ! Still, until we came to a small but swollen stream, our progress was easy enough ; there, however, the bridge which formerly spanned it had broken up, and we found it difficult to cross. The pony, after being unsaddled, refused to swim, and broke through the remains of the bridge, which gave way and pinned him almost under water. Our men released the animal by chopping the uprights away with their tomahawks, and after frantic struggles it landed safely on the opposite bank. Stalker, who had joined me, crossed by means of fallen trunks and *débris* of branches, which I also tried to negotiate, but in I went up to my middle, much to my discomfort until I was rescued by my " boys."

Shortly after this mishap we rested for an hour and had something to eat, and then found the trail led into hilly country, covered with long waist-high grass, and open glades of eucalyptus trees, much like patches of the Australian bush. Anon we would descend into belts of tropical vegetation, where we could hear many sorts of pigeons, birds of Paradise, and parrots calling, and occasionally the strange rumbling noise (to my ears like distant thunder) of the cassowary. Adequately to describe the scenery of that virgin jungle in all the strangeness and wonder of its mighty trees and densest vegetation is beyond my pen. One could not help being struck at the curious devices adopted by many different plants to struggle upwards towards the light at the expense of other species. I eagerly questioned Heni as to certain plants, but he always replied : " Him fellow bush, Taubada," which I could readily see for myself ! Certain huge trees had their trunks split up into a regular network some yards above ground, whilst others maintained their base by means of wide flying-buttresses, and no branches occurred for many feet. Huge bunches of orchids depended from the higher branches of the larger trees, while smaller clusters of the same genus decorated the trunks at lower levels, though at this particular season none seemed to be in bloom. To bring down a bird from the tree-tops was beyond the power of a 12-bore gun, and Stalker, cognisant of this fact, had included a duck-gun in his armoury, which came in very useful.

It was a great relief once the foothills were reached to lose the mosquitoes, which rendered travelling through the mango-swamps and low country very trying. The daily rainfall caused all the streamlets to swell, and many formed their course down our path, so that dry feet were an impossibility. The leeches, which in places haunted the track, fastened themselves on to the carriers' legs in numbers, but our boots and putties successfully

defied their attentions. Both Stalker and myself were more than satisfied when that first day's march ended at Epa, and although the mileage did not total anything much, the going was very tiring. We arrived late in the afternoon at this village, and settled down in the Mission house, whilst our carriers and staff slept on the verandah and under the house. We gratefully received some fresh bread from the native missionary in charge, and early next day paid off with tobacco and knives a few men and women who declined to come further. These also undertook to return the pony, which they would certainly lead, as they seemed afraid of it, and were always much astonished when I occasionally jumped a small obstacle across the path.

The following day I started without Stalker, who considered it advisable to increase our food and trade boxes from the depot we had arranged for at Bioto. Most of our staff and carriers followed me, and the march was a hard one. We were continually climbing up hill and down into ravines, and the gloom of the latter and the uncanny silence, amidst a rainy drizzle, soon caused the usual shouts and chatter to subside. I do not recollect passing through any eucalyptus belts; we were simply surrounded by the impenetrable jungle until we finally arrived in the afternoon in a small clearing on which stood the Mission house of Eikeiki. Then the sun appeared, and one of the "boys" went off with his gun and returned with a beautiful bird of Paradise (the first I handled)—*Paradisea raggiana*—which I skinned that evening. Some of the carriers had hunted the bush with their dogs, and came in with three wallabies, which they roasted and ate, handing over to me the heads, which I boiled for the sake of the skulls. Where the village lay I did not trouble greatly to discover, but it was not within hail of our camping-site, and none of its inhabitants paid me a visit. After a third day's march, which was more arduous than the preceding one, we eventually reached Madeu, and again monopolised the Mission house. There I paid off about twenty-five carriers with sticks of tobacco and huge knives, and away they went, after a good feed of rice, whooping and racing down the ravines below my camp which was perched on the top of a high hill.

Five days later Stalker arrived, and with Heni and a villager we both set off next morning to call on the missionaries at Dilafa, which village is, I believe, the farthest inland quarters of the Mission. After a very stiff climb for over three hours we reached this place, and were most hospitably entertained by the seven missionaries dwelling there, who kindly gave us leave to occupy their house at Madeu as long as we wished. We returned to our camp late in the afternoon, just in time to escape the rain. Here we stayed three weeks, and during that time were so fully occupied in bartering our beads, cloth, plain irons, knives, etc., with the

On the March.

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natives for birds of Paradise and other varieties, as well as various reptiles and cuscus, that we never went a mile beyond the house. Towards the end of our stay we emptied the aviaries we had constructed under the house, turning the inmates into small cane-work cages, which the villagers and our " boys " quickly made under our supervision. We had amassed a goodly collection of birds, and having special permission to collect and shoot in this particular district, which had long been preserved for

Our Home at Mekeo.

birds of Paradise, these must have sung a " Te Deum " at our departure. Truly they had had cause to lament :—

> "The world is full of Woodmen who expel
> Love's gentle Dryads from the haunts of Life,
> And vex the nightingale in every dell."

A steamer was timed to call at Yule Island on April 19th, so with a week in hand, we started off on the return march, having the cages slung on long poles carried by two men. The additional anxiety with

our precious freight occupied our constant attention, but beyond one bird which escaped, we suffered no losses. We had arranged with Mr. Bowden that the whale-boat should meet us in a creek near the village of Nikora, which saved a longer tramp *via* Bioto, and on the third day we reached this small village. Reckoning on spending one night in this place, we began to settle down in peace after a fearful march for hours through horribly-smelling and flooded mango swamps. News, however, arrived that the boats and canoes—really expected a day later—were awaiting us in the creek. Away we had to scramble, packing up in no neat fashion. Our carriers behaved splendidly, and on the edge of a filthy creek we paid off each one with a tomahawk (value 3s.) for the three days' work for porterage. We placed the birdcages under waterproof sheeting on a canoe and our stores on another, whilst Stalker and I and our men occupied the whale-boat, and in a heavy tropical thunderstorm the police rowed us over to Yule Island. I was very despondent as to the safe arrival of the birds, but needlessly so, for not a feather got wet, and all arrived safely. Stalker would return inland, so all the stores were placed under his charge, and I was very sorry to bid him and Mr. Bowden farewell.

On the many trials and tribulations of the homeward journey with my delicate freight I need not dwell. In the end I was able to hand over a large number of valuable birds, hitherto unknown alive in Europe, to the authorities of the Zoological Society, at Regent's Park. I am happy to state that Mr. Stalker has lately also returned safely with a further consignment, which may now be seen in the Gardens.

Travellers and Photography

How to Secure Good Results

By DUDLEY KIDD.

No explorer nowadays thinks of starting on any serious expedition without taking a camera with which to illustrate his experiences. While there is little to complain of in regard to the quantity of photographs turned out, it must be confessed that in too many cases the quality of the results leaves much to be desired. The explorer finds his duties so multitudinous that, unless photography be an old hobby, he is disinclined to pay much attention to the theory and patient practice of the art; yet would he but give heed to a few essential points, he might make his photographs much more artistic and pleasing.

In this article it is proposed to indicate briefly, under various headings, for the sake of those who are not experts, a few of the more important things to be attended to by those who wish their photographs to be marked out by greater technical and pictorial distinction. Before we come to details it is necessary to emphasise the fact that the besetting sin of the man who merely dabbles in photography—especially in a hot climate—is a failure to take pains. Photography, of a sort, has been made so fatally easy, that so long as the novice can produce some kind of result he will frequently take neither the trouble to study and read up the subject, nor the pains to apply what knowledge he has. For example, everybody who has eyes in his head is aware that grass and trees do not appear to us to be black smudges; that skies are not bare white areas; that the faces of dark-skinned people do not present flat black surfaces, but have, in common with those of other human beings, normal modelling and subtle gradations of tone; yet how common is it to find amateur photographers who are not only quite content to produce black grass and trees, bald-headed skies, and black silhouettes of human beings, but who resent, almost as a personal insult, any criticism of such glaring monstrosities. The man who would be successful in his photography must be the severest critic of his own work, for it is only the self-critical that excel. There are pitfalls for the unwary, the slipshod, and the easily contented, at every one of the many stages in the production of a photograph, and at every stage it is true :—

> "The little more and how much it is;
> The little less and what worlds away."

The unfortunate thing about photography is that it generally happens that a slight error in one stage is not merely added to, but multiplied by, an error in some subsequent stage. In photography small trifles breed rapidly, and unless the amateur takes the utmost pains at every point, and resolutely refuses to imagine that a little carelessness here and there does not matter, he is almost certain to find faults accumulating in geometrical progression.

THE CAMERA.

The first cause of failure to get sharp, clear pictures, is often to be traced to the camera. While the expert photographer can produce better work with a five-shilling Brownie than the novice with a fifty-guinea outfit, yet the person who wishes to take photography seriously had better avoid cheap, light, fool-proof cameras. If for use in a hot climate, the camera must be strongly made and metal-bound; otherwise the joints will yield when they are exposed to the alternating dryness and moisture of the tropics. Faulty focus is frequently the result of the yielding of the joints and the warping of the wood, which lead to displacement of the plate from its true position. Unless the camera come from the workshop of one of the very best English makers, be sure to test—before leaving home—the accuracy of the focussing scale; and when in the tropics, even if the apparatus come from the best maker, test all adjustments at periodical intervals, for accidents will occur to even the most conscientiously-made cameras; while in the cheaper forms the climate may play such havoc with the adjustments, that the once light-tight instrument will leak like a sieve, and the distance scale will be rendered worse than useless.

For securing pictures of moving objects or shy subjects, the Reflex type of camera is almost essential, for with such an instrument not only can one see the image right-way up on the focussing screen, not only can one see a full-sized image up to the moment of exposure, but one can be *certain* that the focus is sharp. There are few things more disappointing to the ethnologist, for example, than to find that the pictures of suspicious savages he has taken endless pains to secure are, owing to mistaken calculations as to distance, out of focus. The expert, of course, can, without a Reflex camera, secure correct focus in nine cases out of ten, but not so the novice.

THE LENS.

The second cause of dull, ill-defined, uninteresting pictures, is to be found in the lens. When globe-trotting, I have many times been asked by puzzled amateurs, armed with high-priced lenses, why they could not get clear, sharp pictures, such as I showed them. On

Crossing a Swaziland Drift.

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examining the lenses I have frequently found them incredibly dirty, for it had never occurred to the owners that the lenses needed cleaning. Cheap cameras are very frequently sent out from the dealers with hopelessly dirty lenses ; and in badly-designed apparatus no provision is made for taking the lens to pieces for cleaning purposes. If one had not frequently met quite intelligent people working for months with dirty lenses and faulty focussing scales, one would not have believed that anyone could be puzzled as to the cause of their blurred pictures.

A common cause for unpleasing pictures is due to the selection of a lens of too short focal length. To get pleasing pictures, the focal length of the lens should, in most cases, be twice the diagonal of the plate to be covered ; and yet photographic dealers generally assure an unwary purchaser that a lens of half this focal length is best. Ignoring the fact that elimination is the beginning of art, and appealing to the greediness of human nature, they say : "You will get so much more into your picture with a lens of short focal length." But examine a full-length cabinet portrait taken with a 7 in. lens, and you will see that it appears as if you were holding your head a few feet from the subject's body, and were squinting with one eye up at his head, and with the other eye down at his boots. Had the portrait been taken with a 14 in. lens, the camera would have been placed so far from the subject that a more normal view would have been obtained. This is not the only fault that arises from the use of a lens of short focal length ; for should one of the hands of the sitter project a little in front of his body, it will be magnified out of all proportion.

To the use of a lens of too short a focal length can be traced another common defect. The picture will be seen to be too dark at the corners though quite bright in the centre ; the sky at the edge of the picture will possibly show heavy thunder clouds, while in the centre it will be absolutely white, and without a trace of cloud. What the eye sees is the reverse of this, for it is quick to take in every detail in the centre, while it somewhat disregards objects at the extreme edge of the field of vision. The cause of this false rendering of nature is due to the falling off of light at the edges of the circle of illumination ; it would have been avoided had a lens of double the focal length been employed, for such a lens would have had a larger circle of brilliant illumination, the central portion of which would alone have been used.

With regard to the working aperture of a lens, it is a safe rule to adopt, with very occasional exceptions, to use as large a stop as possible. This advice is given for several reasons ; not only is a short exposure required, but the rendering of "atmosphere" will be found to be much better than it would have been if a smaller stop had been employed. Moreover, especially in the case of portraits, the diminished depth of focus resulting

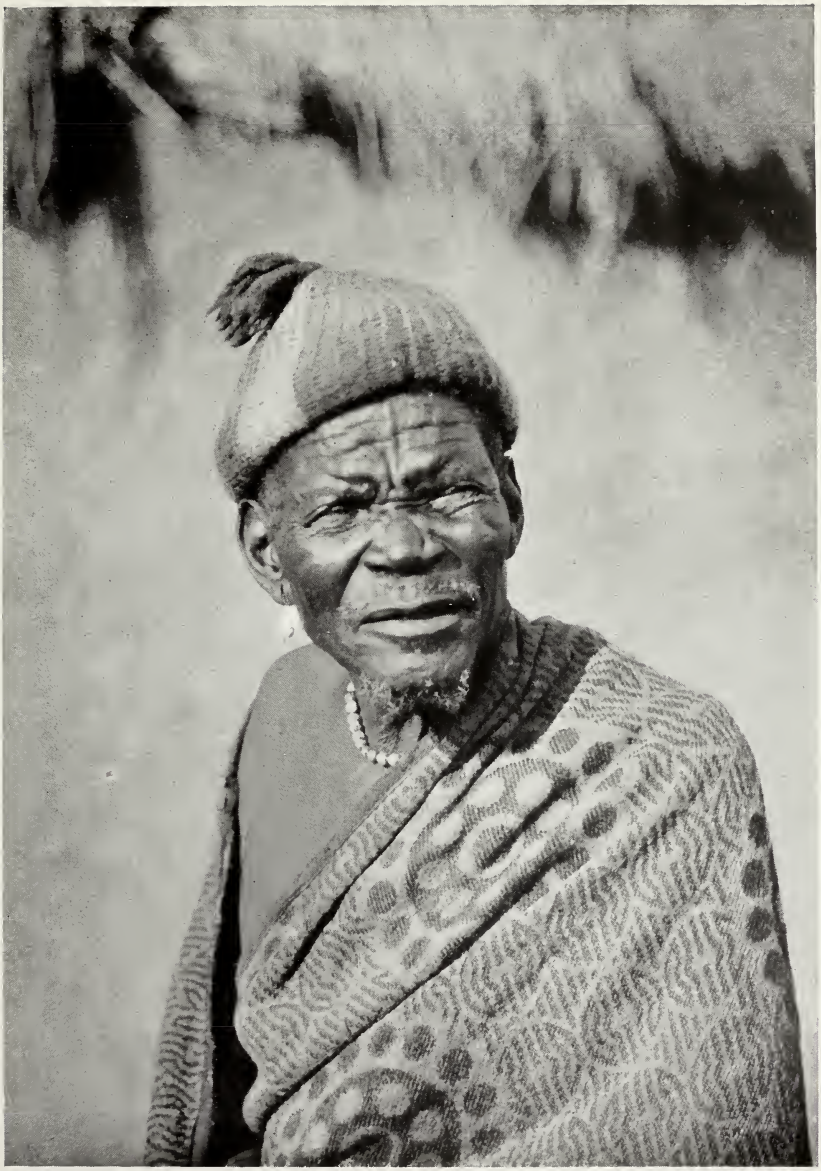
from the use of a large aperture will be found to be a gain rather than a loss, for the principal object will be sharply defined while the background will be thrown out of focus ; thus interest will be concentrated on the important object, which will stand out from, instead of being buried in, the background. A picture, not a diagram, is what we wish to secure ; and to preserve a sense of space we should make the spectator feel that he can get round behind the subject. Too often the person photographed appears to be flattened against the background.

It is most desirable to have some sort of hood or shade to the lens, for in tropical countries there is such a glare from the sky that unless the lens is shaded there is almost certain to be some degradation of the image. It is sometimes almost as necessary to protect the lens from the glare that comes from the ground. In countries where the soil is red, as in most parts of South Africa, this is not required ; but when photographing in Egypt I found the clearness of my pictures much enhanced by fixing a piece of black cardboard so as to shade the lens from the flood of light reflected by the white sand. In photographing snow scenes, this hint will be found to be of great value.

THE PLATE.

Amateur photographers will never cease discussing the relative advantages of plates and films. Celluloid is, chemically speaking, less stable than glass ; if, therefore, we can but escape from the fetish of lightness we shall naturally decide to rely on plates, carrying films merely as a sort of " extra," or luxury. I am not denying that films will frequently be found to work well even in the tropics, but in my own experience so often have films proved unreliable that I depend entirely on plates. Cristoid films, being devoid of celluloid, are of course not open to the above criticism.

For the best work the plate simply must be backed, as much of the fog that destroys the brightness of the average picture is due to halation. It is well to remember that in the process of block-making, any slight degradation of tone in the print, whether arising from halation or any of the other causes indicated, will be exaggerated. With a well-backed plate it is possible, as is shown in the accompanying picture, to photograph dark-skinned natives against the sky without finding even the slightest veil over the print. That spots and markings may occur from the chipping off of the backing is, no doubt, true ; yet for years I have exposed none but backed plates, and have never suffered from this trouble, as I never develop or insert a plate in a dark slide without gently brushing the surface of the plate with the edge of the palm of my hand. I take it, therefore, that the defect referred to indicates carelessness on the part of the operator.



An Old Kafir.

EXPOSURE.

It is useless to expect good results if one guesses at exposure. The amateur has only to use an actinometer to insure that the exposure shall be approximately correct in at least eleven out of every twelve pictures. The actinometer is so simple that a child could learn how to use it in ten minutes, and it will save its cost over and over again in a month. An example may help to press home this point. Wishing to photograph the interior of a Kafir hut into which light could only enter by a doorway two feet high, I was in every sense of the word absolutely in the dark. Should the exposure be five minutes or five hours ? Even the popular tables of exposure failed to give the slightest clue on such a problem, and my previous twenty years' experience in photography was equally useless. I tested the light by means of my Wynne actinometer and the difficulty was solved in a moment.

LIGHT AND SHADE.

The coloured image on the ground glass always looks so pretty that one is apt at first to imagine that a photograph of the scene must look charming. But, since photography records light and shadow, it is essential for the photographer to learn how mentally to discount the charm of colour. A man must overcome the temptation to snap his shutter whenever some passing whim urges him to do so. A scene or figure that would be charming in one light may prove utterly uninteresting in another. Since it is shadows that, for the most part, give piquancy to a scene, the first rule is not to photograph a view when it is illuminated by a front light, for in that case the picture will be excessively tame. A three-quarters side-light will usually prove effective ; though pictures taken against the light have a peculiar charm, especially if care be taken to shield the lens from actual sunshine. In the case of open-air portraits, it is well to place the model at a considerable distance from the background (so as to throw the background out of focus), and to avoid brick walls, ivy, spotty foliage, and all such fussy things which do but distract the attention from the main object. For the same reason it is well, when posing a model, to see that the sky-line does not cut the face in two.

THE RIGHT MOMENT TO SNAP.

When the photographer has made sure that his scheme of lighting is pleasing, he has to decide when to release his shutter. The first point to attend to, when photographing moving objects, is to watch for the psychological moment when the body is in a state of unstable equilibrium. Thus a man beating a person with a stick is best caught when his arm and stick are raised and ready to strike ;

The Outspan.

at that moment, though there is very little movement actually taking place, yet the attitude and obvious strain of muscle speak of motion. In the case of such a thing as a bullock wagon, not only should one wait for some characteristic and interesting moment, such as that which always occurs when, the oxen in mid-river, the driver stops the wagon before it leaves dry ground—at which point all one's interest is aroused as to the chance of accident—but one should also choose a drift where the lines of the oxen and wagon fit harmoniously into the lines of the landscape. In the picture on page 43 it will be seen that the curved line of the road leading to the water is continued by the oxen and wagon, and so presents an interesting curve. Had the button been pressed when the camera was a few yards either to the right or to the left of the position from which the exposure was made, this continuation of the curving line would have been lost, though no doubt the image in the finder would have looked " pretty " from many standpoints.

DEVELOPMENT.

It is probably a counsel of perfection to urge that all plates should be developed soon after exposure, for the convenience of postponing development till the end of the trip will generally prove irresistible to all but the enthusiast ; yet the traveller is taking too many risks if he does not develop at least some test plates every now and then, so as to make sure that all is going well.

The chief error the novice makes in development consists in using his developer far too strong—an error into which the local man who develops amateurs' negatives is also apt to fall. When the picture contains great contrasts such as that of the dark skin of Eastern races against the sky, it is well to give very liberal exposure, to use half the normal quantity of pyro, and to double or treble the quantity of water usually recommended. By this means the resulting picture does not look as if it had been painted in soot and whitewash, for there will be delicate gradations even in the shadows of the dark skin, as the picture of the Pondo girl shows. (The pose of her arm, though characteristic, is very awkward ; but she was shy of the camera, and any request to her to alter her pose would probably have led to a refusal to be photographed.)

It is frequently thought to be hopeless to seek to secure good clouds on the same negative as the landscape unless one uses orthochromatic plates and a yellow screen, which, of course, are invaluable. The picture of an outspan, on the previous page, was taken on an ordinary plate; and yet, in spite of the brilliant light in the sky, the clouds have been preserved because development was carried on with a very dilute developer and was stopped before the details in the high lights were buried. All plates that require such special treatment should be packed in one box,

A Pondo Girl.

and the local photographer should be instructed to develop them as indicated.

PRINTING AND FINISHING.

While for delicacy and charm no photographic print can approach a platinotype, yet in supplying a picture for the block-maker it is well to use P.O.P., and to take special care not to overprint. The picture must have full gradation, and should be, if anything, a little more " plucky " than one wishes the final result to be, for there will be some loss of brilliance in the reproduction.

Many a picture is ruined owing to a timid application of the trimming knife, for amateur's prints are often vastly improved in composition when half the foreground or sky has been trimmed away. A photograph may look flat or uninteresting until three-quarters of it has been thrown into the wastepaper basket. By a liberal trimming of the print one may even get over one of the errors resulting from using a lens of too short focal length. The portrait of the old Kafir was taken on a half-plate with an 8 in. lens. More than half the entire print has been ruthlessly cut away, and by this means the distorted hands have been removed. The resulting small picture—the kernel of the original—has been enlarged up to cabinet size, and now appears as though it had been taken with, say, a 14 in. lens.

In conclusion, the four illustrations given have many defects, but they would have had many more had not some of the above points been borne in mind.

A Journey into the Primeval Forests of Tropical Peru.

By L. C. BERNACCHI.

In the early part of 1906 I had occasion to undertake a journey from the coast of Peru to the banks of the River Inambari, in the direction of the primeval forests of the Rio Madre de Dios, of the upper Amazon basin. Peru naturally falls into three divisions: the barren, rainless, and comparatively narrow strip bordering the coast; the central highlands, tablelands, and fertile valleys, known as the Sierra; and the Montaña, or eastern slopes of the Andes, which gradually sink into the great, dense, tropical forests of the river basins.

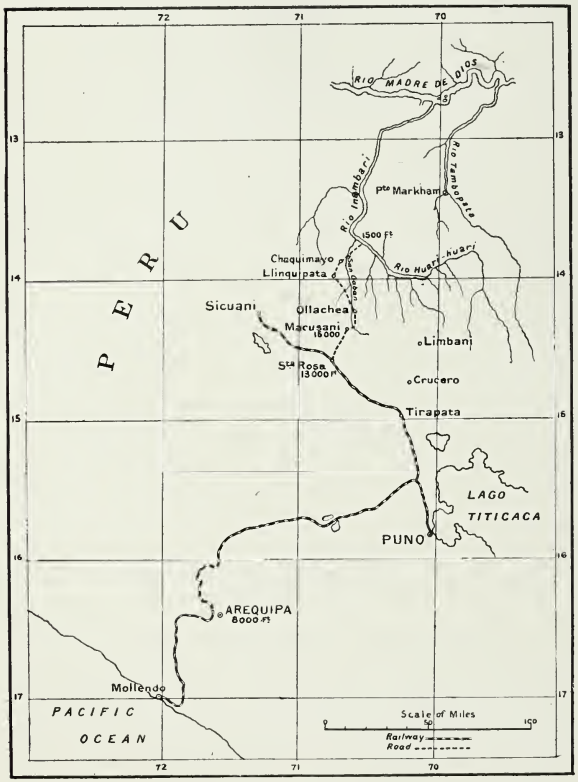
As far as Santa Rosa, a small town standing 13,000 feet above sea-level, I was able to make use of the Peruvian Corporation Railway. This is a remarkably fine line, which starts from Mollendo, on the Pacific coast, and gradually winds its way up the western slopes of the Andes, attaining at one point, Crucero Alto, an altitude of 14,666 feet. In the first part of the journey the track lies along barren slopes and the edges of deep ravines, or "quebradas." The great pampa in between Mollendo and Arequipa is utterly devoid of vegetation, for though the soil is rich, the rainfall is practically nil. Whilst in Arequipa I was approached by a gentleman who had a marvellous scheme for irrigating this pampa, which would, according to his careful and conservative calculations, return millions of dollars in a few years' time! On the pampa are numbers of moving sand heaps, or dunes, self-piled on a very sharp, crescent-shaped base, the convex side of the crescent facing the prevailing wind. I was told that the dunes moved about two feet a year.

Beyond the highest point on the railway vegetation becomes more abundant. Large flocks of llama and alpaca are seen, and a few wild vicuña. In the distance, nearer the eastern edge of the plateau, the horizon is bounded by the solemn and magnificent snow peaks of the Andes.

After some delay at Santa Rosa, I set out one morning in the first week of May with a Quichua Indian guide (whose knowledge of English was as limited as my Spanish or Quichua), a baggage mule, and two riding mules. We left about ten o'clock, and my guide assured me, by what I understood to be most hopeful signals, that we could easily reach Palca Farm, our next stopping-place, by five o'clock in the afternoon. The

road, or track, was for the first few miles extremely rough; later it became better, but was never more than a track. We passed some fine pasturage country, and saw flocks of sheep of rather mixed breed, and large flocks of alpaca and llamas with their Quichua Indian attendants. These Indians of the Pampas appeared to be more intelligent than those of the lower slopes.

We passed through Nuño, an agglomeration of mud huts, at about three o'clock, and had still ten miles to go to Palca Farm. The mules seemed thoroughly fatigued, and we made slow progress. During the day it had been intensely hot, and my hands were blistered by the sun, but towards evening it became cold, and we had to wrap up in overcoats.



At six o'clock my guide suggested that we should stay the night at an Indian hut, as there was no chance of reaching Palca that night. Although I did not relish the idea of sleeping in a Quichua hut, I was compelled to assent, as it was now dark, and the path dangerously rough. After a light supper we went to sleep on some straw within the hut, and, contrary to expectation, I was not troubled by insects of nocturnal habits. Twice, however, during the night I was disturbed by the cowardly Quichua guide, who slept some distance away—though not sufficiently far to rob me of his disgusting aroma—once because he thought a rat was biting him, and again because he feared mosquitoes.

Palca Farm was reached early the next morning. On the way we passed some steaming holes, which denoted the presence of small hot-water springs or miniature geysers, reminding one not a little of the New Zealand

hot-lake district—Rotorua. The farmer and his wife were extremely courteous, and we were thankful to get a good meal and some wine. I managed to make myself understood in French, the wife having been educated at an Arequipa convent, and remembering a little—a very little—of that language. The farm itself was most beautifully situated. It was surrounded by some very fine pasturage, and there was an air of general prosperity about the place.

Macusani, a little mud village, which lies at an altitude of about 15,000 feet, and is the capital of the province known as Carabaya, was our halting-place on the second night. I was entertained as the guest of the

Santa Rosa.

Sub-Prefect, who not only supplied me with fresh mules and some Indians, but personally conducted me to within a day's journey of the Inambari.

On reaching the high ground above Macusani we came in sight of a magnificent range of snow peaks, one of which in particular, named Allen-Capac, which towers to a height of about 20,000 feet, stood out in the rarefied atmosphere with great boldness. After two hours' riding across some good undulating pasturage, we reached the eastern edge of the plateau, and rapidly commenced to descend the side of a deep and sombre ravine. The scenery here was on the grandest scale—behind us the lofty plateau of the high Cordillera, 15,000 feet above the sea, with giant white peaks rising to nearly 20,000 feet, and below the

deep, rugged, formidable gorge leading down to the zone of tropical vegetation.

Here and there on the sides of the ravine are stone huts and small cultivated patches belonging to the Quichua Indians, who grow chiefly an elongated kind of edible tuber called "occa" (*Oxalis tuberosa*). On tasting this, I found it to be most delicious in flavour, and I arranged to take some seed specimens home with me. Since my return I have grown the occa in England with fair success, and as it is not so susceptible to frost as the ordinary potato, and is possibly freer from disease, it may prove a useful vegetable.

Llamas being loaded at Santa Rosa.

By far the most striking feature in the descent was the rapid and remarkable change of climate, and the corresponding change in the vegetation. Every few yards brought to view some new plant, shrub, or flower, and as we drew near to Ollachea, which stands at an elevation of 9,000 feet, beautiful clusters of geraniums and orchids, and other gorgeous flowers, were found growing in profusion.

Remains of a former population were to be seen almost to the edge of the dense tropical forest. Some of the dwelling-places appeared to have been of considerable size, and the centres of extensive cultivation. To judge from the character of the remains, the country must formerly have

been occupied by a people who had reached a fairly high stage of civilization. Some excavation and a systematic exploration of these ruins may prove rich in valuable discoveries. Since my return I have looked up some old Spanish records, and the site appears almost identical with the ancient Inca city named by the conquerors San Garan, famous for the large quantity of gold it exported. There were also, close to the ruins, some peculiar forms of sepulchre, each consisting of a small chamber constructed like a miniature house, and provided with a door. Some of the tombs were of masonry, and appeared to have been painted red; many of them were placed in perilous and almost inaccessible spots. Baron Erland Nordenskiöld examined a number of these tombs, or "chulpas," and sepulchral grottoes, during his travels on the borders of Bolivia and Peru in 1904—5, and in a paper which he read before the Royal Geographical Society in 1906, he mentions that the dead appear always to have been placed in the tombs in a sitting posture. Most of the tombs contained several skeletons, and in one grotto he found close upon two hundred.

The present population of the eastern slopes of the Andes is chiefly a Quichua-speaking one, all Christians under the influence of Spanish civilization, though retaining many customs, now possibly modified, from the pre-Spanish period. An interesting and extremely useful little Quichua dictionary has recently been compiled by Sir Clements Markham, which cannot fail to be of considerable interest to philologists, and of utility to men who are daily brought in contact with Quichua Indians. All these Indians are agriculturists of a somewhat primitive type.

At Llinquipata, a small clearing on the edge of the dense tropical forest, I met the English manager of a rubber concession. Here we had to leave our mules and proceed on foot to Chaquimayo, the manager's barraca, or dwelling, another small clearing plunged in the midst of this dense, dark forest of the Amazon basin, so dense indeed that but for a fairly good open road we could not have penetrated without cutting away the vegetation. Thick tangled vines fell down from the loftiest trees. Soon after we set out from Llinquipata the rain came down in torrents, and we were quickly drenched, and the track became soft and boggy. There were two rivers to be negotiated. The first we waded through up to our waists in the rushing water. The second was the turbulent San Gaban River. Here there was a wire bridge, but partially completed, and we were hauled across one of the wire hawsers, sitting in a triangular frame of wood running over the wire by means of a small wheel.

With the manager of the rubber property were two young savages belonging to a tribe known as the Atsahuaca. Some few months before a small band of the Atsahuaca had visited the barraca at Chaquimayo. The men were clad in bark shirts without sleeves, and were armed with

bows and non-poisonous arrows, while the females wore round their hips a square piece of the same material as the shirts. Both the men and the women had the cartilage of the nose pierced, and in some cases a small coin had been inserted. A few of the women also wore necklaces of monkeys' teeth.

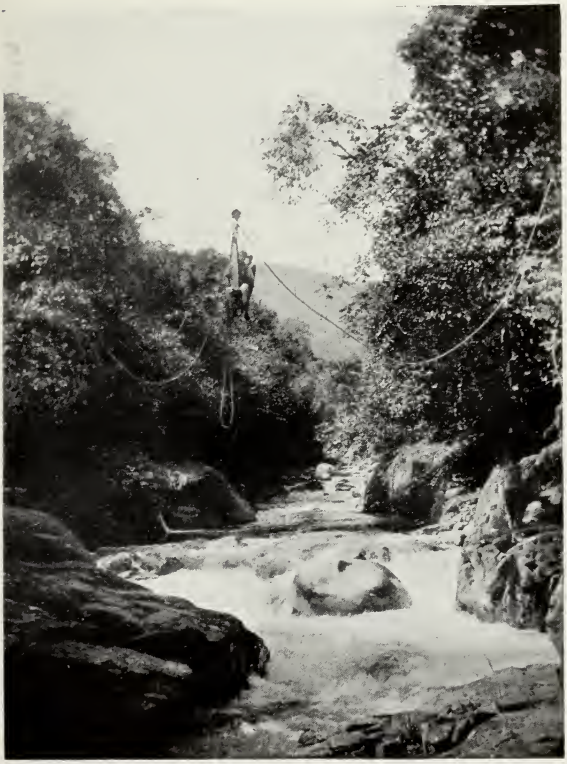
This tribe, the Atsahuaca, which confines itself almost exclusively to the Inambari valley, now numbers only about thirty members. When they visited Chaquimayo they seemed tame, good-natured savages, and like children were intensely interested in what they saw at the settlement. They remained some days at Chaquimayo, and

Bridge at Llinquipata.

then left for the Inambari River, leaving behind them a number of bows and arrows, firesticks, bark shirts, and feather head-pieces in exchange for some knives, axes, shirts, and watches. The two young boys whom I have mentioned also remained at the barraca. The manager told me that these savages were all of a most affectionate nature, and showed a charming disposition. Stealing seemed unknown amongst them, for although they handled and examined everything within the hut, they never appropriated a single article. In this respect they are totally different from the low, cunning Quichua Indian. They are also very cleanly in their habits, and bathe every day in the rivers,

and it is not surprising to find that they are all splendid swimmers and adepts at spearing fish. When I arrived at Llinquipata the two Atsahuaca boys had just secured a fine fish in the San Gaban River by means of a specially designed arrow. Some days before they had secured a fish in the same river and in a similar manner, weighing sixty-two and a half pounds.

The Atsahuaca, in common with a few other small tribes inhabiting these river valleys, speak a language known as Pano. Their arms of warfare are the bow and arrow. Knives and firearms are, or were until quite recently, unknown to them, all their weapons and implements being made of stone or bone. They have no settled habitation, and content themselves with a protective roof, if so it may be called, of palm leaves. They are monogamists, and support life chiefly by hunting and fishing, and by a little very crude cultivation of the banana, tubers, etc. To the ethnologist this remnant of a very primitive people offers an interesting subject for study, but if the process of extinction continues, the opportunity must soon be lost for ever.



Crossing a Mountain Stream.

After a wet, unpleasant tramp of four hours through the forest from Llinquipata we reached the Chaquimayo habitation—a small clearing in the forest, occupied by a crude log hut, cruder Quichua habitations, a store-house, and a small patch of cultivated ground on which were growing bananas, plantains, oranges, tapioca, and coffee, all recently planted and looking vigorous. In spite of the primitive conditions, it appeared an ideal spot in this picturesque forest. Besides the manager, there were a

few Bolivian and Quichua Indians, and the two Atsahuaca savages, also three very cheeky and brilliantly-coloured macaws, an impertinent and capricious monkey, and, strangest member of this strange family, a young tapir, trotting in and out of the hut, and so tame that it would feed out of the hand. This young tapir had been captured by the savages, and was of a darkish hue, with white or grey longitudinal stripes—not "black," as described by Darwin in his "Descent of Man." The tapir was very plentiful in the locality, and was hunted for food.

Savages of the Inambari.

The manager informed me that some days before, while he was bathing in a pool close by, the savages hunted out a fine large male tapir. The beast immediately made for the pool, in which he was standing up to his breast in water, and passed within reach of him, swimming under the surface. As it passed him he made a fierce blow at it with a "machete," a long sharp knife for cutting down scrub, but the point did not even penetrate the thick skin. Immediately after, one of the young savages loosed an arrow, which penetrated about two feet into the animal, ultimately proving fatal. The extraordinary thing is that while the knife which failed to penetrate was of fine hard steel, the arrow was entirely of wood, and the incident shows how dexterous these savages are with bow and arrow, and how hard and deadly the arrows must be.

As I desired to start for the Inambari River early next morning, the manager very kindly prepared the baggage and selected Indian porters

that same evening. He was of opinion that it would take two or three days to get to the Inambari, as the forest was very dense, and we should have to cut a way through. He himself had never made the journey, though he had spent fourteen months in the district.

We made an early start next day, the party including the manager, a Bolivian guide, the "savages," and a dozen Quichua Indian porters. These latter were the ordinary type of Quichua Indians, dirty, hang-dog in appearance, their cheeks bulging out with coca leaves, which they chew incessantly. The Quichua Indians throughout the whole of Peru, men

Young Tapir at Chaquimayo.

women and children, are inveterate cocaine eaters, and a large business is done in growing and selling the leaves, which the Indian chews with the addition of a little lime.

The forests we passed through were very dense and wet, and soon after starting torrents of warm rain came down. Now and then monkeys were heard chattering in the trees overhead, and occasionally the shrill scream of the macaw rent the air. Some rubber trees (*Hevea*) were passed, most of them bearing the marks of having been tapped some time before. We also passed a few copal gum trees, while on the tops of the hills grew

quinine trees of the red and least valuable variety. Here and there were " heaps " of soft earth made by the armadillo, and one large constrictor snake about eight feet long was seen.

At about two o'clock in the afternoon we stopped on the banks of a small river named the San Juan. After lunch, our Indian carriers " struck " work and desired to camp for the night by the San Juan, their reason being that it was impossible to reach the Inambari until late next day on account of the great distance and the dense forest. Moreover, they declared that there was no drinkable water in between. As I strongly suspected they had never in their lives been to the Inambari, I decided not to waste an entire afternoon, and ordered them to return to the camp, leaving only a little food and some blankets with us. Of course, they were clearly given to understand there would be no pay. This they were not prepared to do, and after much talking and grumbling, got their packs on their shoulders and set off again. Towards evening, when on the summit of a steep hill, we heard the rushing of a great river below, and some hours later, after much slipping down a steep slope, wet to the skin, and with clothes in tatters, we suddenly emerged from the dark forest on to the bank of a wide swiftly-flowing river—the Inambari.

The Chief of the Savages.

The river here is about a hundred and fifty or two hundred yards wide, and owing to numerous rapids, rocks and whirlpools, is navigable only by small rafts called " balsas," and by those only when handled by the experienced savages of these river valleys. Our Bolivian guide told us that some years before, when he had visited the river, the Atsahuaca women had crossed from the opposite shore supported by a short thick log of dry wood under each arm, and with babies on their backs. They smilingly made signs of invitation to the Bolivians to go back with them, which, needless to say, were not accepted.

The river at this time was rather low, and, after taking a number of photographs, we followed it down for a considerable distance on the rough, water-worn stones along the bank. There are many most suitable spots for habitation close to the river, and rich soil for cultivation. My own

journey ended at the banks of the river, and it would be beyond the scope of this paper to describe the first authentic journey down the Inambari, and the preliminary survey of its course, which were carried out by another party only a few months ago.

Peru is undoubtedly a country of immense natural resources. Although the coast is so barren through want of rain, the soil, where

Chaquimayo Office and Store.

properly irrigated, is extremely fertile, and grows that very fine white quality of cotton known in the markets as Peruvian. The sugar estates, on account of the heavy crops, can still compete with the foreign beet sugar at home, and the petroleum wells visible from the sea, especially at Talara, pay well, and supply much of the fuel for the Peruvian Corporation Railway.

These are the chief coastal industries, all in their infancy. The Sierra is specially adapted to wool growing. The flocks of llama and alpaca are enormous. The domestication of both these Peruvian sheep is lost in antiquity, and is a proof of the great age of Peruvian civilization. Gradually the merino sheep is being introduced, and does splendidly on the rich pasture, the wool selling at the highest prices in the continental markets.

In the Montaña there is untold mineral wealth (gold, tin, and copper), great forests of Para rubber, and timber. The forests of the Inambari abound in fine Para rubber trees of the *Hevea* variety. Baron Nordenskiöld mentions the large number of trees he saw in these forests, and goes on to say : "The trade in rubber, should good roads be constructed, may prove of vast importance." But there are difficulties to overcome, not the least being that of getting an adequate labour force to live in the forests. The numerous Quichua Indians of the fell, contrary to expectation, do not relish the more laborious, though more profitable, business of rubber gathering, and are content to eke out a lazy existence as primitive agriculturists. Already the adjoining republic of Bolivia is the second largest tin producing country in the world, and the day is not far distant when Peru will be in the first rank of gold-producing countries. But there are two great essentials for the opening up of Peru—outside capital to develop its great resources in agriculture, mining, the collection of rubber, and trading ; and better and more rapid facilities for transport to the coast. The day of unstable Governments and revolutions has practically gone, to be succeeded by an era of steady progress, energy, and development ; and given these two essentials—foreign capital and improved communications—Peru will gradually become one of the richest countries of the world, as, indeed, it was when Pizarro and his band of ruffians came and brought extinction to a great people, devastation to a highly developed country, and the ruin of its economic system of government, more perfect in some respects than our own.

Dirigible Balloons

By ERIC STUART BRUCE, M.A.

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There could be no better example of the interdependence of industries than the history of dirigible balloons. Their development and use have been almost entirely due to the coming of the light petroleum motor. But many years before the missing link was found, various types of navigable balloons had been constructed, and even moderately successful experiments carried out with them. It was not long after the balloon was invented that discontent with its unguidable nature arose, and many projects and schemes were from time to time evolved by which it was thought its control would be secured. But the first practical attempt to steer a balloon was in 1852, when Giffard discarded the ordinary globular balloon and made one elongated in form. For its propulsion he devised a comparatively light steam engine and boiler, characterised by some ingenious points of construction. For instance, the wise precaution was taken of making the chimney of the boiler inverted so as to minimise the danger of setting fire to the gas in the balloon. The steam engine worked the screw propeller. But Giffard had little realised the difficulties in the way of successfully navigating balloons, for he selected for the trial a very windy day, on which the Lilliputian steam engine of three-horse power had no chance of demonstrating its powers of propulsion. Some have wondered why, after his elaborate preparations, he made so few experiments. A French savant, who was one of Giffard's intimate friends, told me the real reason was he was discontented with his boiler. But Giffard was the pioneer of the navigable balloon, and his first type embodied proportions which, even in our present state of knowledge, would be a safe formula of construction. Had his motive power been adequate he might have carried out journeys which would have compared favourably with those recently made.

The successful use of ordinary unsteerable balloons during the siege of Paris called the attention of the French military authorities to the advisability of making them still more useful by steering them. When the developments of electricity were arousing public attention, its aid was sought as a light motive power for balloons. In 1883 the brothers Tissandier devised their electrically-propelled balloons, in which an

electric motor was fed by a bichromate battery. They claimed that they held their own against a feeble wind of three metres a second.

The experiments of Krebs and Renard with their fish-shaped electric balloon, "La France," in 1885, were epoch-making, as being the first in which a direct return journey was made. Their gas-bag was probably the best shape that has yet been designed to insure stability. It was dissymmetrical, the master diameter being near the front, and the diameter diminishing gradually to a point at the back. Out of seven ascents it returned five times to its starting point, combating wind forces of 3.50 metres a second. But a bichromate electric battery, though a possible source of power in an experiment, was unfitted for practice.

Zeppelin Airship.
[Topical Press Agency, Phot.

The first notable application of the petroleum motor to airships was carried out in 1900 by Count Zeppelin, who made a monster airship 420 feet long. It was a specimen of what may be called the rigid type. Imagine seventeen huge bicycle wheels made of aluminium with their spokes complete, and these wheels to be united at intervals by longitudinal pieces of aluminium, and in this way seventeen sections to be formed, each of which contains a separate balloon, and it is then easy to grasp the construction of the Zeppelin airship. It was, in fact, built

up of a number of separate balloons, held together in an aluminium cage. The cage was covered with cloth. The shape of the airship is one which offers great resistance to the air. This is a weakness. Another disadvantage is undoubtedly the size of the structure, which makes it unwieldy and difficult to manipulate. The aluminium screw propellers are small, only about 44 inches in diameter, but they revolve at very high speeds. There are four of these, two at each side of the airship. The Daimler motors are placed in two aluminium cars beneath the airship. The profuse use of aluminium is another weak point. Aluminium has the fascinating quality of lightness, but this is fully counterbalanced by its

British Air Ship: Trial Ascent.

[Topical Press Agency, Phot.

brittleness. Its unfitness for a framework supposed to be rigid was shown by the wreckage of the first Zeppelin by a gale inside its own shed. While Count Zeppelin kept his Daimler motor at only 16 horse-power, he did not eclipse the records of 1885, but he has now been increasing his motive power to 110 horse-power, with the result that he now holds the record of the longest distance travelled in a dirigible balloon.

The great journey of August 4th—5th was from Friederichshafen, on Lake Constance, to Echterdingen—730 kilometres. There were two landings in this distance, but 488 kilometres were covered without touching ground at a speed of 40 kilometres an hour. The journey over the Rhine was a triumphal progress. As the ship passed over the

picturesque towns, soldiers lined the river banks, the strains of the National Anthem filled the air. Vast crowds shouted greetings, bells pealed, and artillery fired. But at its last halting-place came its tragic end. A gale sprang up, and the balloon became unmanageable. There was an explosion, the soldiers holding the balloon let go. It rose in flames to drop a smouldering mass. The cause of the explosion is unknown. Colonel Möedebeck has suggested it was the self-electrification of the indiarubber-coated envelope which ignited the escaping hydrogen.

At the time that Count Zeppelin was making his first experiments another adventurous spirit was calling the attention of the world to motor-driven airships. That was the clever Brazilian aeronaut, M. Santos Dumont. At whatever value his aeronautical achievements may be placed in the history of aerial navigation, there can be no doubt that he impressed the world with the possibilities of human flight more than any previous experimenter. Some estimation of his work in the development of the navigable balloon may not, therefore, be out of place.

There were two features of M. Santos Dumont's work which specially impressed the public mind and increased their belief in the possibilities of aerial navigation. First, his feat of making an aerial return journey within a time limit. Before the Brazilian aeronaut made his famous journey from St. Cloud, round the Eiffel Tower and back again within the time limit of half-an-hour—the condition for winning the Deutsch Prize—aerial travelling had been altogether dissociated from time. Anyone who started from London in a balloon in the morning would not dream of making a business appointment in the City in the afternoon, for the time of the journey rested in absolute uncertainty. M. Santos Dumont was the first aeronaut in the history of the world to associate aerial travelling with time, and it was this sportive feat which largely accounted for his popularity.

Secondly, it was the same aeronaut who showed how the vertical movements of a balloon ballasted so as to be just heavier than the air could be controlled without sacrifice of gas or ballast. By means of his shifting weights the airship assumed an oblique position, and free diagonal movement could be imparted to it onwards and upwards, onwards and downwards. This happy combination of horizontal and vertical movements had not before been within the experience of man.

As an aerial sportsman M. Santos Dumont has been, perhaps, unsurpassed. Maybe it was this quality which led him, in the construction of his airship, to neglect the experience of those who had gone before, and learn his own lessons by his hair-breadth escapes. During his experiments he evolved some sixteen types of airships, each containing some new feature.

His balloons with which he made some of his boldest voyages were wanting in stability, and therefore could not be taken as standards for

future work. He made, however, good use of the ballonet, or inner balloon, to maintain the rigidity of the outer envelope. This inner balloon being kept full of air compensates for the loss of gas in the outer envelope.

The importance of the ballonet cannot well be over-estimated. Balloons of the ballonet type contrast well in their greater simplicity with the rigid type exemplified in the Zeppelin airship.

The experiments of M. Santos Dumont gave an excellent opportunity for ascertaining what wind forces were overcome by his airship. The wind force overcome is the real test of value in a navigable balloon experiment, and yet it is the one figure usually omitted in accounts of balloon voyages. Since M. Santos Dumont so frequently rounded the Eiffel tower, near the story where the meteorological instruments were placed, I

Lebaudy Airship. [Topical Press Agency, Phot.

obtained from the authorities of the Eiffel Tower a record of the wind forces registered on all the days of his experiments. A comparison of these records with the records of M. Santos Dumont's journeys made it possible to ascertain the highest wind force combated by him on his journeys round the tower, which was about 5 metres a second. The higher wind force of 10 metres a second has been claimed by the Lebaudy airship.

In the Zeppelin type, by placing the screws at the side of the airship, Count Zeppelin sought to apply propulsion at a more advantageous point than had his predecessors. Previously it was the framework, or car, which was pulled or pushed along, and the gas envelope dragged behind.

This is a serious engineering imperfection. It was the lamented Severo who devised the ingenious system of combining balloon and car in one melon-shaped symmetrical body, through the centre of which passed longitudinally the shaft which revolved the propelling screws at either end. The screws were therefore in the position in which to propel the whole system and not the car only. This, however, necessitated the introduction of a very small space between the car and balloon proper. By reason of this small space the presence of the petroleum motor in the car could not fail to be dangerous, and was the cause of the fiery end of Severo's balloon, and the death of inventor and engineer. On the morning of the ill-fated May 11th, 1902, Severo and Sachet ascended in "La Paix." A few moments after the ascent the balloon exploded, in the words of an eye-witness, "like a crash of thunder," and the occupants were precipitated to the ground.

No constructor has dared to revive the scheme of Severo. If, however, the electrical method of propelling airships should now become more practical by the invention of a portable, light, and powerful storage battery, the ingenious idea might safely be brought to light again. The battery and electric motors could be placed inside the gas-bag where sparking and heating could do no harm. For it is the borderland, where oxygen atoms may combine with the hydrogen atoms, that is the place of danger.

In 1902 tragedy seemed destined to succeed tragedy in aerial matters. Very shortly after the martyrdom of Severo and his engineer, Baron de Bradsky and M. Morin ascended from the same ill-fated airship shed in an ill-constructed machine. The idea was a laudable one: to give vertical motion to the airship without the alternate sacrifice of gas and ballast. For this purpose a horizontal screw was provided beneath the airship's car. But one horizontal screw beneath an airship tends to twist it round—to convert it into an aerial top. To avoid this distressing effect it is necessary to provide two horizontal screws rotating in opposite directions. This precaution was absent in the De Bradsky airship, and it twisted round with the disastrous effect that the steel wires which held the car to the balloon snapped, and the balloon and car parted company in mid-air, with tragic results. After this second disaster the fate of aeronautics seemed to be hanging in the balance, and public sympathy was temporarily repelled from a science that seemed to many to be "murderous." One of the greatest patrons of the science, who by his generosity has done much to stimulate public interest, told me at this moment he was losing heart on account of balloon accidents.

Never was there a moment in aeronautical history more critical; never one that more needed the counterbalancing element of success. Very soon success came to turn the tide of pity and disappointment. Even while Severo and De Bradsky were gliding to their fatal ends, another

airship was being prepared for its trials. This was the Lebaudy type, fortunate in that its originators were men of engineering skill.

From the first appearance of the Lebaudy dirigible balloon to its latest travels, it has met with marked success, and is, without doubt, the fittest type that has been launched into the ocean of air. Not that it is a perfect instrument. It cannot sail in strong winds, nor could it weather a storm, for it possesses that about it which to our present knowledge imposes the limit of usefulness on a navigable balloon—the resisting gas-bag. But for military use in calm weather, or even moderate winds, the French nation who have acquired its services have a new engine of war.

In the Lebaudy type are contained some of the best features of past

New Parceval Balloon just off on its First Trip.

[Topical Press Agency, Phot.

efforts. It is dissymmetrical in shape, though not exactly resembling that excellent pattern, "La France," but it partakes of the important quality of having the master diameter near the front. It is not of the externally rigid type, for it is not enclosed in a metallic cage, and much reliance is placed on the internal air pressure system. But there are other means of imparting to it requisite rigidity. For instance, the balloon is fastened to a rigid oval floor made of steel tubes. The car is a steel frame covered with canvas, and in the form of a boat. This is fixed to the gas-holder by steel wire ropes. The two screw propellers are placed on either side of the car and their thrust conveyed to the bottom of the balloon by steel tubes. In this conveyance of the thrust to the balloon lies much of

the success of the system. This airship, between October 25th, 1902, and November 21st, 1903, carried out some sixty-five journeys, in the course of which some very excellent records were made. On July 3rd, 1905, the airship travelled from Moisson to Mieux, traversing 95 kilometres in 2 hours 37 minutes. It was in the autumn of 1905 that the Lebaudy airship went through a series of manœuvres to test its efficiency in war, with such success that it was adopted by the French Government. A fine example of the Lebaudy type was "La Patrie," unfortunately lost by its escaping from the hands of the French sappers. This could boast of a motor of 70 horse-power, and of having travelled 93 kilometres in two and a half hours. A successful feature of the Lebaudy airship is no doubt the devices attached to it to minimise rolling and pitching.

Though the British military captive observation balloon equipment is without a doubt the finest in the world, until last year the dirigible balloon was conspicuous by its absence, but in October, 1907, the first type was launched. In a general way this could not compare in efficiency with such a balloon as the Lebaudy type, but it had one excellent feature, in which it surpassed the efforts of every other nation; that was, the material of its envelope, which was goldbeater's skin, a substance admirable for the purpose on account of its lightness, strength, and capacity of holding the gas.

Of very recent dirigible balloons the German Parceval is an interesting type. It is the very opposite to the rigid and cumbrous structure espoused by Count Zeppelin. Its one aim is portability, and this is an essential feature for the exigencies of war. Another new German type is "The Gross," a cross-breed between the Zeppelin and Parceval systems.

It is often asked what will be the uses of dirigible balloons. Their principal use will be doubtless in war, and their chief war use will probably be scouting. The captive stationary balloon is invaluable for this purpose. How much more so one that can travel and scan the enemy and steal its secrets, not from a fixed point, but afar, over fortress and camp. Prophecies are often afloat as to future dirigible balloons that will rain explosives and blot out cities, that will convey troops into citadels in the still hours of night. But those who predict such uses forget that weight is the bugbear of the lighter-than-air principle. Such a use is more likely to be accomplished by machines that are heavier than air. It will be asked whether the flying machine will oust the dirigible balloon. This is unlikely for some time, for the reason that the balloon has buoyancy and a greater margin of safety. In the present state of progress a treacherous gust can bring the aeroplane to earth at any moment, while the dirigible balloon, even if wind diminishes its navigable powers, can remain aloft, and, ascending high, can sail with the elements out of reach of shot and shell.

TRAVEL-LITERATURE

RUWENZORI.*

By Major R. G. T. Bright, C.M.G.
British Commissioner for the Survey of the Uganda-Congo State Frontier.

A volume emanating from so distinguished an explorer as H.R.H. the Duke of the Abruzzi commands great respect. The Duke explains in the preface that he had not the requisite time at his disposal for writing a full account of his exploration of Ruwenzori, and that he requested Cavalier Filippo De Filippi, who had already published an account of a previous expedition in which he had accompanied the Prince, to undertake the task. The story is admirably told, and as an interesting account of the explorations of a well-organized and successfully-conducted scientific expedition to the borders of the Uganda Protectorate, should be read by the many who are interested in the outlying portions of the British Empire. It is, however, regrettable that numerous misprints and misnomers occur throughout the book. The initials of explorers and others are treated with scant respect, and in some instances native words have been doubly pluralised by the addition of an "s." The prefix "Ba" denotes the plural of a tribe, and we read of the Bakonjos.

The book abounds with numerous and beautiful illustrations, some of which are full-page plates and panoramas from the artistic photographs taken by Cavalier Vittorio Sella, and portray vividly the striking spectacle of a snow-capped region but a few miles north of the equator. There are three maps, including one showing the position of the peaks of Ruwenzori, which is of great geographical interest. It is the first and only accurate survey of the snow-bound region, and the positions of the peaks agree relatively with those obtained by the recent Anglo-Congolese Boundary Commission. Fort Portal is, however, some miles to the west of the place assigned to it by the Duke of the Abruzzi.

It is now some years since Sir Henry Stanley expressed the "dear wish" that some lover of Alpine climbing "would take Ruwenzori in hand, and make a thorough work of it, explore it from top to bottom, through all those enormous defiles and those deep gorges." He himself, while traversing Africa with the Emin Relief Expedition in 1888, was the first white man to behold the snowy peaks of Ruwenzori. He had before been close to the mountains, as also had other explorers, but they had not seen the peaks. In 1864 Sir Samuel Baker discovered Lake Albert and gave the name of the Blue Mountains to an indefinite mass he discerned faintly looming through the mists. He did not, however, form any adequate conception of the Ruwenzori Range. This is the more remarkable as Baker was at Lake Albert during the rains when the atmosphere

* Ruwenzori: An Account of the Expedition of H.R.H. the Duke of the Abruzzi. By Cavalier Filippo De Filippi. London: Messrs. Constable & Co., 1908. 31s. 6d. net.

is clear, and Ruwenzori is more often visible than during dry seasons, when it is almost invariably hidden from view by dense mist. A summary of the different attempts to ascend the mountains is given in the volume. Doctor David estimated that he climbed the range to an altitude of 16,700 feet (not 16,400 feet, as given in the summary), but the Duke of the Abruzzi was unable to identify the col reached by him. In 1900, Mr. J. E. S. Moore attempted to scale Ruwenzori from its eastern side. He was unsuccessful, but he proved that there was no plateau in the centre of the range, and that Ruwenzori ought to be described not as a mountain, but rather as a range of mountains. During the following five years several ascents were made to the snows, but all efforts to climb the highest peaks ended in failure, and very varying estimates were put forward of their height.

On April 16th, 1906, the Duke of the Abruzzi had completed his arrangements, and, accompanied by several officers who had been his companions in his Arctic and other expeditions, sailed from Naples. Some of the guides and porters selected had already gained African experience on Mount Kenia, in the East Africa Protectorate. The Uganda Railway, by which the party travelled to Lake Victoria, receives praise " as a witness to splendid perseverance and resolution in an incessant struggle for six years against the gravest difficulties." On the whole, the course of the journey is very well described, but it is not, perhaps, surprising in the circumstances that one or two mistakes have crept in. Thus it is stated that the Great Rift Valley is dotted " with tiny volcanoes, some active, others extinct." There are in reality but few active volcanoes in Africa, and none within hundreds of miles of the Uganda Railway. Of some native canoes on Lake Victoria we read that " the sharp click of the oars in the rowlocks was already dying out in the distance." The canoes on Lake Victoria have neither oars nor rowlocks, but are propelled by plunging the paddles almost vertically into the water and moving them in a backward motion, during which they strike the side of the canoe. Then again, the islands in the lake are described as ranging from mere rocks just rising above the water to islands " crowned with mountains attaining to a height of 2,000 feet above the surface of the lake." There are no islands with heights approaching such an altitude, though rising as they do in many cases sheer out of the water, their heights appear to be far greater than they are in reality.

The expedition started from Entebbe on May 15th. " The caravan numbered about 400 individuals, and the vanguard was nearly out of sight by the time that the Prince and the other members of the expedition started in their turn." When some forty-five miles from Ruwenzori, the travellers had their first sight of the snowy peaks, which " looked as if they were suspended in the air, for their feet were enveloped in mists while a heavy rack of clouds hung so low over the summits as nearly to rest on them." The expedition remained two days at Fort Portal, near the foot of Ruwenzori, and the Duke completed some astronomical observations and established a meteorological station. The results of the astronomical observations for latitude agree well with those of the British Section of the recent Uganda-Congo Boundary Commission, while the heights of the two highest peaks—Margherita and Alexandra—are but 21 and 23 feet higher respectively than those obtained by the Commission.

Alexandra Peak Margherita Peak

The Highest Peaks.

[Reproduced by permission of Messrs. Constable & Co.

At Bujongolo, at a height of 12,461 feet, a base was formed from whence the actual exploration of the peaks could be carried out. The temperature often reached freezing point during the night, and it became necessary to provide the almost naked Bakonjo porters with clothing. With his usual forethought the Prince had foreseen this, and they were supplied with warm flannels and blankets. On the whole, the porters were well behaved. "It was very rare indeed for even a single porter to refuse to go on with his load, although they nearly always got their feet swollen and hurt by the stones." While in the camp, which was situated at a very difficult spot, they lay huddled together in the cavities between the boulders, where they had not even space to stretch themselves at full length, and it can easily be imagined that during a halt, when the natives were warming themselves and smoking before a blazing fire, "it was not easy to induce them to start again promptly." A first ascent was made of Edward Peak, 15,988 feet, and then, on June 15th, the Prince started from Bujongolo to ascend the highest summit. He was compelled to load himself with a considerable number of rupees, as the porters had, in the hope of delaying the march, put forward a claim to be paid every day. At the end of the third day a camp was formed at nearly 15,000 feet, and the Duke sent back the natives and remained with two of the guides, Petigax and Ollier. Day dawned on June 18th with a clouded grey sky. They roped together hastily and in silence. Gusts of wind were blowing from the east, and layers of mist were ascending the valley in compact masses, which soon shut in the party completely. By 7.30 a.m. the top of one of the peaks was reached, but the highest summit remained invisible, and all three stood waiting for its appearance, their eyes turned obstinately northward. By nine o'clock they could not endure waiting any longer, and decided to take the mountain by the shortest route, which was also the most dangerous. Soon they stood nearly vertically one above the other, climbing slowly by the steep steps which Petigax cut in the ice wall. Below them the wall was almost immediately swallowed up in the mist, so that they seemed suspended over a bottomless abyss. One guide served as a ladder for the other, who quickly hoisted himself to the top, and a few minutes later the Duke set foot upon the highest peak of Ruwenzori. The two extreme summits of the highest peaks were named Margherita and Alexandra, "in order that, under the auspices of these two royal ladies, the memory of the two nations may be handed down to posterity—of Italy, whose name was the first to resound on these snows in a shout of victory, and of England, which in its marvellous colonial expansion carries civilization to the slopes of these remote mountains."

The exploration of the peaks was continued till July 12th. On one occasion the Duke and his companions were enveloped in a cloud so charged with electricity that tiny discharges began to crackle upon their ice-axes, their tripod, and their barometer. Even their hair crackled upon their heads. For five weeks the Italians had been on the mountains, and with good reason they were satisfied with their work. They had climbed all the principal peaks, making no fewer than twenty-eight ascents, to heights varying from Margherita, the summit of Ruwenzori, to Mount Cagni, 14,826 feet.

The local British authorities will be gratified by the generous appreciation

shown in the volume of the services which they were only too happy to render to the Italian expedition. "Ruwenzori" is a worthy and valuable record of one of the most successful exploring enterprises ever carried through in Equatorial Africa. The expedition was equipped on a Royal scale, and led by a Prince distinguished for his intrepidity and resourcefulness, and also experienced in surmounting difficulties and obstacles which might well have daunted a less experienced traveller and explorer.

THE WISDOM OF THE SLAV.

In *The Shores of the Adriatic* Mr. Hamilton Jackson has performed what has evidently been a labour of love. Some time ago he published under the same general title a volume describing the Italian side of the Adriatic. The present volume (John Murray ; 21s. net) deals with the Austrian side. Mr. Jackson is a member of the Royal Society of British Artists, and Vice-President of the Institute of Decorative Designers, and his book, written with a great wealth of historical knowledge, is largely taken up with architectural and archæological studies. The picturesque aspect of the country, however, with its magnificent scenery and quaint survivals of mediæval customs and costumes, also receives attention, and the volume is very finely illustrated with line drawings by the author, admirable photographs of interiors as well as general views by Mr. Cooper Ashton, and a number of plans. The curse of the country, according to Mr. Jackson, is the bitter north wind, the Bora. In the island of Arbe it sometimes blows even in June and July, stripping the vineyards as if hundreds of men had been at work. Views on the coast resemble those of Sardinia and Sicily. "On one side may be seen green meadows, fruit trees, flowing water, cornfields, beechwoods, etc. ; on the other, olive groves, thickets of arbutus, hedge plants the height of a tree, myrtles, and bay ; . . . . so close are the boundaries between the flora of middle Europe and of the Mediterranean. Almonds flower in December, and peas and beans are often gathered at Christmas." The Morlacchi, a branch of the Slav population, are very fond of proverbs, some of which Mr. Jackson quotes. In one or two of the following the analogy with our own proverbial wisdom is very apparent : He who has been bitten by a viper fears the lizard. The empty sack does not stand upright. You can't shut out the sun with the palm of your hand. There is most milk in other people's cows. Be married by your ears and not your eyes. As the mother spins, so the daughter weaves. Horses by their pace, maidens by their stock.

NATURE'S FOREST SLUMS IN EQUATORIAL AFRICA.

In *My African Journey* (Hodder & Stoughton ; 5s. net) Mr. Winston Churchill gives a popular account (well supplied with photographic illustrations and sketch maps) of the tour which he carried out in the closing months of 1907 through British East Africa and Uganda and down the Nile. Purely from the travel point of view the journey was notable less for any novelty it possessed than for the attention it attracted to the remarkable change which a few short years have wrought in the conditions in Eastern Equatorial Africa. As far as

Entebbe the journey can be performed in comfort by rail and steamer. Beyond, it no longer presents any difficulties, but one can better realise the spirit of the primitive continent. Describing this stage of his tour, Mr. Churchill says, in one of his gorgeous word pictures :—" For a whole day we crept through the skirts of the Hoima forest, amid an exuberance of vegetation which is scarcely describable. I had travelled through tropical forests in Cuba and India, and had often before admired their enchanting, yet sinister, luxuriance. But the forests of Uganda, for magnificence, for variety of form and colour, for profusion of brilliant life—plant, bird, insect, reptile, beast—for the vast scale and awful fecundity of the natural processes that are beheld at work, eclipsed, and indeed effaced, all previous impressions. One becomes, not without a secret sense of aversion, the spectator of an intense convulsion of life and death. Reproduction and decay are locked struggling in infinite embraces. In this glittering equatorial slum huge trees jostle one another for room to live ; slender growths stretch upwards—as it seems in agony—towards sunlight and life. . . . . Birds are as bright as butterflies ; butterflies are as big as birds. The air hums with flying creatures ; the earth crawls beneath your foot. The telegraph wire runs northward to Gondokoro through this vegetable labyrinth. Even its poles had broken into bud ! " With the narrative is coupled a good deal of information about the problems of development which confront the British Administration in Eastern Equatorial Africa, and the volume should serve a useful purpose in spreading knowledge of, and quickening public interest in, what Mr. Churchill describes as the " wonderful estates " acquired by the British people in that part of the world. The conclusions at which he arrives are summed up in two injunctions : " Concentrate on Uganda," and " Build a railway."

A FROG SYMPHONY.

The reader who will persevere beyond the opening chapters of *Through Southern Mexico* (Witherby & Co., 18s. net) will find much that is both instructive and entertaining in Dr. Hans Gadow's account of his travels. Dr. Gadow is an enthusiastic naturalist, and, as a Fellow of the Royal Society, may be supposed to write with both knowledge and discernment. His journeys were undertaken in company with his wife, and provided many amusing experiences in a country where the business of life is conducted in the most casual manner. With his narrative is combined a great store of curious information about the animal and plant life of Southern Mexico. On one occasion : " Whilst rambling along the edge of the forest we became conscious of a noise, at first resembling the mutter of a distant sawmill ; but on our reaching the other side of a cluster of trees this sound grew into a roar, like that of steam escaping from many engines, mingled with the sharp and piercing scream of saws. It came from a meadow containing a shallow pool of rainwater. In the wet grass, on its stalks, and on the ground, hopped about hundreds of large green tree-frogs ; nearer the pool they were to be seen in thousands, and in the water itself there were tens of thousands, hopping, jumping, crawling, sliding, getting hold of each other, or sitting still. Most of them were *in amplexus*, and these couples were quiet, but the solitary males sat on their haunches and barked solemnly, with their resounding vocal

bags protruding. Every now and then one was making for a mate, and often there were three or four hanging on to each other and rolling over. The din was so great that it was with difficulty that we caught the remarks that we shouted, although we were standing only a few feet apart." There are numerous illustrations from photographs and drawings, and a sketch map.

JUDAS DAY IN SOUTHERN CALIFORNIA

There is an American as well as an English Highways and Byways Series, and in *The Pacific Coast* (The Macmillan Company ; 8s. 6d. net) Mr. Clifton Johnson has described very brightly and very racily his experiences up and down the Western States. Here is one of the things he was told at Capistrano, in Southern California :—" You ought to be here the last day of Lent—Judas Day, we call it. The night before, it is customary for the Mexicans to ransack the village and steal buggies and tools, and anything they can carry off, and they make a big pile of all this plunder just outside the fence in front of the old Mission. Then they take a worn-out suit of clothes and stuff it full of weeds and stick it up on top of the pile, and that is Judas. Next they get an old dress and stuff that full of weeds and set it up side of Judas to represent his wife. In the morning when we wake up we find all the vehicles and loose things that were around our yards stacked up over by the Mission, with those two scarecrow figures on top. But the best of the performance comes in the afternoon when the Mexicans bring to the village two half-wild bulls from the hills. They tie Judas to one, and Judas's wife to the other, and chase the creatures up and down the street till the two figures are torn to tatters." The volume is daintily produced and well illustrated.

ESKIMO LOVE OF SMOKING.

In 1905 Mr. A. H. Harrison went down the Mackenzie River to the Arctic shores of Canada in the hope of finding new land in the unexplored expanses of the Beaufort Sea. Owing to a combination of adverse circumstances he was unable to undertake this exploration, but busied himself with survey work under very difficult conditions, in and around the Mackenzie Delta. *In Search of a Polar Continent* (Edward Arnold ; 12s. 6d. net) contains the record of his experiences. At times food was so scarce that frozen fish were eaten raw with relish. In winter the fish froze as soon as they were taken from the water. " The thermometer only registered 28° below zero, so we did not feel very cold," says Mr. Harrison on one occasion. Once he had to go four days without food, though he was still able to " enjoy a meal of tea." He and his Eskimo followers kept a cheerful countenance through it all, and nothing was allowed to interfere with the taking of observations. One of the most admirable traits of the explorer is his appreciation of the Eskimos with whom he worked in the winter of 1906–7. Mr. Harrison has the great gift of being able to adapt himself to circumstances and companions. " The indifference," he says, " with which these people calmly sit down in all temperatures and storms and smoke their pipes is very trying till you have got used to it ; when you have done so, you follow their example without finding it disagreeable. . . . . The smoke is a matter of half-a-dozen

puffs. These, perhaps, take a little longer to inhale, since they are drawn through a wooden stem that is a foot in length. One would think, indeed, that the Eskimo, like schoolboys, 'snatched a fearful joy' out of their tobacco, since they tackle so minute a load of it and at so respectful a distance. Still, they go bravely to work, and, when they have exhausted their six whiffs, they fill the pipe a second and yet a third time ; but, when all is said and done, eighteen puffs are not an extravagant allowance at a time. When they get into bed at night they smoke a final briefly meditative pipe, lying on their bellies." A good map and numerous illustrations add to the value of an unpretentious record of an excellent bit of work.

USEFUL TRAVEL MAPS.

From Messrs. J. G. Bartholomew & Co., Edinburgh, we have received new editions of three of the maps in their "World" Series, distinguished by all the clearness of execution characteristic of Mr. Bartholomew's work. A Route Chart of the World on Mercator's Projection (1s. ; cloth mounted, 1s. 6d.) shows the leading shipping routes, with distances from port to port ; through and projected lines of railway ; the extent of sea open all the year round ; and the chief coaling stations, distinguishing between British stations on the Admiralty list and others. The meridians of longitude are marked so as to show the time in any part of the world when it is noon at Greenwich, and over a score of inset maps show the approaches to some of the chief world ports. There is room for improvement in the indication of the railway systems in some of the remote countries. The course through Central Africa of the hypothetical "Cape to Cairo" Railway, the construction of which does not at any rate belong to the immediate future, has been laid down, while on the other hand but scant justice is done to the great system of railways built and projected in French West Africa, nor is there any indication of the coming extension of the Ethiopian Railway from Dire Dawa to Adis Abeba. In Australia nothing is shown of the transcontinental connections for which Government surveys have lately been carried out in both Western and Southern Australia. In Central South America, in the Paraguay basin, railways are shown as constructed which as yet can scarcely be considered as definitely projected.

In a useful map of South America on a scale of 1 : 10,000,000 (2s. ; cloth mounted, 3s.) Asuncion is rightly shown as the present limit of railway construction in Paraguay, but there is no indication that link lines in Lower Misiones and Paraguay will shortly provide railway communication between Buenos Ayres and Asuncion *via* Posadas. The map not only shows British and foreign steamship routes and the rivers navigable for large and small trading boats, but a number of insets show the environs of the principal ports, the Panama Canal route, and the island of Trinidad.

An excellent map for travellers nearer home is the Railway and Steamship Map of Europe and the Mediterranean, on the scale of 86 miles to 1 inch (1s.; cloth mounted, 2s.). There is a table of distances in English miles between the principal stations on the through lines.

THE EXPLORING WORLD

LIEUT. BOYD ALEXANDER'S NEW EXPEDITION.

It is less than two years since Lieut. Boyd Alexander returned home from his great journey across Africa, but the call of the wild is again in his ears. His collector, José Lopes, the half-caste Portuguese who has served him so faithfully on former expeditions, sailed on December 4th for Cape Coast Castle, and he himself left England for the island of San Thomé on December 12th. Writing early in December, Lieut. Alexander informed us that the main object of the expedition is to investigate thoroughly the fauna of the islands of Principe, San Thomé, and Annobon. Zoologically, all that is known at present of the islands would appear to indicate that they are oceanic in character. On the other hand, Lieut. Alexander's expedition to Fernando Po in 1901 resulted in the discovery of a rich and interesting fauna, with forms closely allied to those found on the mainland, from which it may be concluded that there was at one time a land connection between Fernando Po and the mainland. By a careful and systematic study of their fauna, Lieut. Alexander hopes to prove that the same holds true of the other three islands named. Incidentally, we may point out that this would certainly seem to be the case on other grounds. A glance at any map of the Gulf of Guinea will show that the islands of Annobon, San Thomé, Principe, and Fernando Po all lie on a straight line, which, being continued, passes through the Kamerun Peak, and the natural presumption is that the islands are the crests of a submerged chain of mountains which in past ages formed part of the African continent.

AMONG THE KAMERUN VOLCANOES.

After a stay of some four months on the islands, Lieut. Boyd Alexander proposes to cross over to Victoria, in the German Kamerun colony, with the object of ascending and exploring zoologically the Kamerun Peak, which rises to a height of about 13,000 feet above sea level. He anticipates that the fauna will be found to be closely allied to that of Ruwenzori. Subsequently the expedition will endeavour to penetrate further inland among the Manenguba Mountains. One difficulty against which the expedition will have to contend will be the lack of water on the higher slopes of the Kamerun Peak, and the scarcity of labour on the islands is another awkward circumstance. The latter difficulty Lieut. Alexander hopes to obviate to some extent by engaging a certain number of carriers from the Gold Coast—hence the departure of José Lopes for Cape Coast Castle. Ethnological as well as zoological investigations will be pursued, and it is hoped to secure a good series of photographs. Altogether, Lieut. Boyd Alexander expects to be away about a year.

This programme lends special comparative interest to a German scientific expedition which has been at work in the Kamerun under the auspices of a body known as the Commission for the Geographical Investigation of the German Protectorates. The leaders, Professors Thorbecke and Hassert, have

made two ascents of the Kamerun Peak, which, like the islands in a line with it, is volcanic in character, and so far from being extinct shows signs of recent activity, while even now it appears not to be absolutely quiescent. These are not the first ascents of the Peak, which has been climbed by a number of explorers, including Sir Harry Johnston, but the German professors also carried out extensive investigations, and their results, when available, ought to throw much new light on an extremely interesting region. They experienced the same difficulty that Lieut. Alexander anticipates in the matter of water, and attribute its scarcity on the higher slopes to the fact that any rain which falls is speedily absorbed by the porous lavas. After completing their investigations in the neighbourhood of the Kamerun Peak, the German explorers moved further into the interior, gathering information about the character of the country and its resources which will no doubt be extremely useful from the economic as well as the scientific point of view.

DR. STEIN'S GREAT ACHIEVEMENT.

It is sometimes declared that outside the polar regions the days of great exploring achievements belong to the past. There can be no question of accepting such a proposition at a time when almost simultaneously explorers of the quality of Dr. Sven Hedin and Dr. M. A. Stein have concluded extended journeys, each in its own way of fascinating interest, in the wilds of Central Asia. Dr. Stein, who is an official in the Indian Education Department, carried out a few years ago a remarkably successful journey of geographical and archæological exploration along the southern borders of Chinese Turkestan. The expedition from which he is expected back in England as the Old Year gives place to the New has been of the same dual character, and its status may be judged from the fact that it has been carried out under the auspices of the Indian Government, and supported by a grant of £2,000 from the British Museum. Dr. Stein has been engaged on this expedition fully two years and a half, and in that time he has passed along the southern borders of Chinese Turkestan and beyond to within the Great Wall of China, and back by a more northern route, unearthing at almost every stage of the journey archæological remains which give a vivid impression of the life that pulsed centuries ago in regions that now seem hopelessly desert. Some of the best-known native surveyors have been attached to the expedition by the Indian Survey Department, and the work of mapping extensive tracts of country has gone on side by side with archæological research. Within the past twelve months Dr. Stein has twice crossed the dreaded Takla Makan Desert, while only a few weeks ago, when his two and a half years' wanderings were on the very point of being ended without serious mishap, his feet were frost-bitten on the top of a glacier 20,000 feet high, with the result that a number of the toes of his right foot have had to be amputated. Dr. Stein has a wonderful faculty of clothing with living interest the dry bones of a dead and buried past, and the story he will be able to tell on his return will be awaited with keen anticipation by all who know anything of his work.

DR. SVEN HEDIN IN TIBET.

The interest of Dr. Sven Hedin's latest expedition consists in the light it throws on parts of Western Tibet which have hitherto been practically unknown.

In the exuberance of his delight—all perfectly frank and natural—over the success he has scored, some of his claims are perhaps rather exaggerated, and the precise geographical significance of his discoveries remains to be seen. But there is no doubt that within the past two years Dr. Hedin has carried out in Tibet a couple of journeys either of which affords proof and to spare that the romance of exploration is still very far from being a thing of the past. The second journey is perhaps the more attractive, if for no other reason because the news of it came as a complete surprise. From the authorised account of Dr. Sven Hedin's work in Tibet which Major C. H. D. Ryder contributes to the current number of the *Geographical Journal*, it appears that Dr. Hedin was determined, while still at Gartok, to traverse somehow or other the parts of Western Tibet which the first stage of his journey had left still unknown. He gave out that he was going to Khotan, but this was only a blind. It was not only locally, however, that Dr. Hedin concealed his true plans. In letters which he sent to Europe he declared with every appearance of veracity that fifteen months in Tibet was long enough for any ordinary man, and that he was going to make his way to Khotan. Everyone was deceived, and there was much speculation as to his whereabouts when it became apparent that he was long overdue at Khotan. A little anxiety, however, about an explorer only increases the welcome with which he is received on his return, and Dr. Hedin has been able to add another budget of wonderful experiences, besides a great accumulation of maps and other observations, to his already extensive record as an explorer.

NEW HIMALAYAN EXPEDITION.

We understand that in the spring of the year Dr. T. G. Longstaff proposes to undertake a new exploring expedition among the high Himalayas. Dr. Longstaff, who is a distinguished member of the Alpine Club, has already carried out two interesting journeys in the Himalayas. In 1905 he explored some of the glaciers of North-Western Nepal, and in company with Mr. C. A. Sherring made an excursion into Western Tibet ; while two years later he placed to his credit the first ascent of Mount Trisul (23,400 feet), in the course of an expedition in the Garhwal Himalayas which gained for him the Gill Memorial of the Royal Geographical Society. Dr. Longstaff's objective on his new expedition will be the eastern section of the Karakoram Himalayas. His plans have still to be finally settled, but he expects to leave Srinagar in May in company with Lieut. Morris Slingsby, 56th Rifles (Frontier Force), and will proceed either to Leh or Khapalu—to the former if they decide to make first for the Saichar glacier ; to the latter if the Saltoro glacier is the first to be attacked. In making the ascent of Mount Trisul, Dr. Longstaff had the assistance of Alpine guides, but he does not propose to take any guides with him on his new expedition, as the conditions in the Eastern Karakoram differ materially from those obtaining in the Central Himalayas.

NEW EXPEDITION TO DUTCH NEW GUINEA.

What may become an expedition of the first importance is being organised for the scientific exploration of the unknown mountainous interior of Dutch New Guinea. The expedition is due to the initiative of Mr. W. R. Ogilvie-Grant, of the Natural History Museum, and is specially associated with the

recent jubilee celebrations of the British Ornithologists' Union. Already a large sum of money has been subscribed by the members of the Union towards the cost of the expedition. The services have been secured of Mr. Walter Goodfellow, the well-known naturalist, as leader, and with him will be associated other expert naturalists, so that a thorough investigation may be carried out of the zoological and botanical features of the country visited. At the moment of writing no provision has been made for the inclusion of survey work among the objects of the expedition, and this is an omission which we trust will speedily be remedied. Running through Dutch New Guinea is a giant mountain range with snow-capped peaks, estimated from the glimpses caught of them from the coastal region to rise to heights of 16,000 and 17,000 feet. These mountains, like the greater part of the rest of Dutch New Guinea, are practically unexplored. There is here one of the few great tracts in the world where the explorer has a virgin field before him, and it would be nothing short of a geographical sin that an important scientific expedition should seek to penetrate this unknown region without an experienced surveyor attached to its staff. The expedition will probably leave England in about six months' time.

EXPLORING ACTIVITY IN THE ARCTIC REGIONS.

Interest in Arctic exploration promises to be well sustained during the next few years. At the present time Commander Peary—if all has gone well with the expedition on which he started a few months ago—is wintering on the northern shores of Grant Land, prior to making in the coming spring another "dash" for the North Pole. Dr. Frederick Cook is another American explorer who has been attempting to reach the Pole by much the same route, and concerning whom some anxiety has been occasioned by his failure to return as expected last summer. Mr. Stefansson, one of the members of the expedition under Mr. Einar Mikkelsen, which came to grief in 1907 off the northern coast of Alaska, has made his way north again during the past summer, and according to the latest advices should be wintering among the Eskimos living inland along the Colville River, south-east of Cape Barrow. Mr. Leffingwell, another member of the same expedition, has only just returned to the United States, with the intention, it is understood, of going back to the Arctic shores of Alaska and Canada as soon as he can collect the necessary resources.

For a number of years past British explorers have been content to take a back place in Arctic discovery, and it is satisfactory to learn that Mr. A. H. Harrison is maturing his plans for a new expedition on which he hopes, with Eskimo assistance, to pass right across the north polar basin from Banks Land. Mr. Harrison's scheme has been dismissed in some quarters as impracticable, but Mr. Evelyn Baldwin, the leader of one of the north polar expeditions organized by the late Mr. Ziegler, America's "Baking Powder King," has come forward with a very similar proposal. His idea, according to *Petermanns Mitteilungen*, is to enter the polar basin through Bering Strait, embark on the ice with provisions for three and a half years, and then attempt to reach the Pole not by a mere "dash" in the spring season, but by a long sustained journey. On the other hand, Captain Roald Amundsen, the Norwegian explorer, who two years ago completed the first voyage through the North-West Passage, has a scheme for a drift voyage across the polar ocean, and has already secured from the Norwegian Government promise of the loan of the *Fram*.

MOTORING IN MANY LANDS

JOURNEYS AMONG THE SNOWS.

The storing of memories as our road experience increases is not the least among the many pleasures of motoring. I have had as much acquaintance of racing as conducted at home and abroad as most, but I do not think it comparable in points of interest or merit with touring under conditions that are out of the ordinary. For instance, what can be more delightful than motoring amid the snows in July or August ? Five years ago, when it was the common practice to talk of the motoring season being over in this country about November, chiefly because we did not then know the uses of the wind-screen and kindred conveniences, it was my privilege to be one of three who went through what I believe to be the first extended motor mountaineering tour ever undertaken in Europe. The other members of the party were Captain Deasy and M. Max de Martini, and together we traversed three thousand kilometres of Alpine roads and tracks, including sundry forbidden passes, on a 14 horse-power touring car, carrying our luggage and climbing during the tour a total height equivalent to thirty-three miles sheer.

HOW BODY WORK IS STRAINED.

Since the Alpine tour in question I have made many motor mountaineering trips on the Continent, sometimes on English-built and at other times on foreign-built cars, and my experience has been that unless you want to halt occasionally during ascents or descents, either to cool the engine or to cool the brakes, it is best to have a foreign-built car. The only type of brake that I have yet found capable of being applied continuously for over two hours at a spell is the water-cooled sort, and, quite apart from the dangers of brakes "binding," when you go mountaineering with a motor-car it is as well to have the two independent sets of brakes supplemented by an engine that can be used as a brake. Another practical point worth remembering is that if you intend to see the beauties of European mountain scenery as it can be unfolded on a motor-car journey, it will be necessary many times to forsake altogether ways bearing the semblance of high roads. One must seek out many a rutty track that ofttimes, after twenty kilometres' toilsome journeying not unattended with risks, comes to an abrupt conclusion at a spot where reversing and turning are alike embarrassing operations. It is not advisable to use a car with an expensive body, for if the tour is of any appreciable length at the end of it you will certainly find that the doors will not close securely by the matter of an inch or so, owing to the body having been distorted by the constant twisting of the frame of the car, always under circumstances of strain, because either the brakes are being powerfully applied or the motor is doing its maximum work to propel the vehicle up a gradient. Indeed, motor mountaineering is an expensive procedure on other accounts than mere petrol and tyre consumption.

VARIETY OF CLOTHING ESSENTIAL.

Now, as you cannot ascend indefinitely, it follows that in motor mountain-

eering you have very frequently to descend thousands of feet below the snow-line into warmer regions. In other words, exceedingly rapid changes of temperature are sure to be experienced. Though physically worn-out, I have sometimes been unable to sleep for a quarter of an hour at a stretch in a sultry town, yet two hours after starting out early in the morning have been up above the snow-line vigorously engaged in snowballing, as being the handiest means of getting warm. It is not advisable to eat very much uncooked fruit, such as strawberries, when undertaking these jaunts, while it is essential that one should travel provided as well with the warmest, as with the lightest, of clothing, for in July and August the heat in lower-lying parts is sufficient to make one warmly clad feel apoplectic, while above the snow-line, or after sundown, or in narrow gorges down which torrents flow rapidly, it is extremely dangerous to experience even the symptoms of a chill. Another very good " wrinkle " is to wrap one's waist up tightly in cummerbund fashion, for, apart from the constantly changing temperatures experienced, it must be borne in mind that meal-times are sure to be at very irregular intervals, while in order to enjoy the best views of scenery it is needful to be up and doing just before dawn, also to be journeying at sundown, all of which involves very great strain on the constitution, especially if it is continued for any consecutive number of days. If the precautions I indicate are taken, however, no ordinary person will finish a motor mountaineering tour without feeling in very much better fettle than when he started.

FARTHER AFIELD.

We have reached such a stage now that happily the use of the horseless vehicle is not confined to Europe. From time to time I have spoken with and received written communications from those who have gone farther afield by motoring in New Zealand, in India and Ceylon, Siberia and America, or in Abyssinia and other parts of Africa. Some very notable tours are in progress at the moment in those regions. They will be written of in due course, as fresh information concerning their progress comes to hand. Suffice it to point out, at the moment, that what I have said in respect to the stresses to which cars are subjected, and to the question of clothing when motor-mountaineering, applies to tours in the remoter parts of the world. In the main I find that travellers by car do not find savage peoples to be averse from horseless vehicles as, for instance, the Swiss peasantry undoubtedly are. And it has been surprising to me to find that tyres are generally found to withstand successfully extraordinary heat and the unfavourable nature of trackless country far south. In India, and more especially in the mountainous regions of Ceylon, Mr. Cecil Gnapp and Mr. Charles Friswell have both told me that the chief difficulty in driving lies in the extreme narrowness and the extraordinarily abrupt turnings of the ways, in which latter connection a very ingenious improvement has been evolved by connecting up the front lamps with the base of the steering pillar in such a way that they incline at whatever angle the front wheels are turned on the Ackermann principle. This is a practice that is likely to be introduced into motoring at home. I have tried one car so equipped, and have found the arrangement of the greatest assistance in enabling one to negotiate right-angle turns after nightfall.

H. MASSAC BUIST.

AËRIAL·FLIGHT

AN INTERESTING ANNIVERSARY.

THE 13th of January, 1909, will be the first anniversary of the first officially observed power-driven aeroplane flight of a kilometre, the pilot, Mr. Henry Farman, making somewhat of a circular course to return to his taking-off place, and concluding his aerial voyage voluntarily, the time occupied being 1 minute 28 seconds. As a fact, the first flight with a motor-driven glider that did not end involuntarily occurred on December 17th, 1903—five years ago—when the Wright Brothers made four successful essays at Kitty Hawk, North Carolina, at an average height of seven feet off the ground, the most sustained effort of that series continuing for 59 seconds. At the time, however, the public had no indisputably established evidence of man's power to fly on, and direct the course of, a machine heavier than air. The whole value of Mr. Farman's performance when he won the Deutsch-Archdeacon Prize lay in the fact that it publicly demonstrated the physical possibility of skilled power flight.

The past year's progress has been immense. It includes the learning how to carry passengers, the flying over buildings and woods, point-to-point as well as out-and-return aerial journeys, high flying, night-flying, shutting off and re-starting the power in mid-flight, and, last but not least, the proving that success does not depend on any one given design of aeroplane. When will come the day when the Arctic Ocean or the vast unexplored deserts of Southern Arabia will be crossed by aeroplane is a question that still belongs to the realm of speculation. That such a day will arrive he would be a bold man who would deny. But for the present we must content ourselves with tracing the passage of the science of aerial flight through its experimental stages, noting the progress of achievement, and seeking to discern the lines of probable advance.

OUTSTANDING LESSONS.

The outstanding lesson of the past year's achievements has been the exploding of the fallacy that the petrol motor has made dynamic flight possible. Years ago, before we thought anything of such petrol engines, Sir Hiram Maxim demonstrated the physical possibility of the steam engine sufficing as a power-for-weight medium. His contrivance was about four times the size and weight of the largest motor-driven aeroplane yet built, and it lifted itself from the ground so powerfully as to break bounds altogether. His costly work established beyond dispute the fact that artificial flight would not be dependent on weight-cutting; while Mr. Wright has repeatedly emphasised the fact that the particular kind of motive power employed, so it be dependable, has nothing to do with his being able to fly. As the result of a year's trials, we find the leading exponents to-day searching for powerful and reliable motors in place of featherweight and unreliable ones. That is not to say that it is not desirable to have motors that are light for their power, because the more you can economise in that connection the more useful load you can carry on your machine.

The first international aeroplane exhibition, opened at the Grand Palais, in Paris, on Christmas Eve, 1908, shows with what a vast variety of types of motor-propelled gliders dynamic flight has been proven possible, while the fact that the money prizes offered for competition, chiefly on the Continent, during the season now opening total nearly £40,000 leaves no manner of doubt that an incentive far beyond that which was offered to pioneer motorists is being furnished. In this connection it must be borne in mind that already there is a well established aeroplane manufacturing industry round about Paris, while near London two firms are engaged in the business. The average price for a motor-driven glider is £1,000, but those whose means will not run to such sums have consolation in the fact that any aeroplane yet known could be built for from £150 to £200, which, allowing as much again for the power equipment, works out at between £300 and £400 per machine. Of course, the gain of the man with the money to patronise the established manufacturer is that he gets an article guaranteed to fly. But the risk attaching to both the amateur and the professionally-built machine is the same—you may smash either in learning to handle it.

WHY BRITAIN HAS LAGGED.

So far, nobody has made, in Britain, a free dynamic flight with a voluntary conclusion. The reason for this is not that we lack the enterprise. Mr. Farman, the hero of the French, is a British subject; while Mr. J. T. C. Moore-Brabazon has bought no fewer than three aeroplanes, and is over in France learning to handle them, vowing, optimistically, that he will not return to England by land or water. But the conditions are vastly more difficult in this country than they are on the Continent. Where the brothers Wright conducted their experiments for months together, they could rely on a steady thirty-mile-an-hour wind from off the sea. That enormously simplified the problem of maintaining equilibrium. If you went across to France to see Mr. Wilbur Wright practise, despite fruitful years of experience and the perfecting of his apparatus, you found him greatly dependent on the changing weather, an added complication being the problem of the motor. If the wind were suitable, ten to one the motor was not dependable, and, though his machine differs from most others in that the stoppage of the engine in mid-flight results in nothing worse than a gradual descent, nevertheless success in artificial flight is dependent on two independent factors, namely, the reliability of the motor and the adaptability of the planes to varying conditions of wind. We must not be over impatient in this country. Progress is being made extraordinarily quickly, as achievements here within the next twelvemonth will duly inform the public.

At the rate of progress made since last August, the coming year ought to see the performance of 24-hour flights. The value of such performances will really be greater than will the speedy aerial passages to be made in connection with the long-distance point-to-point aeroplane races that are being promoted in the leading European countries. Mr. Wright has very opportunely pointed out that what we want to learn is not how to fly fast, but how to fly slowly. After all, speed is merely a matter of engine power for weight and size, whereas slowness of flight involves the minimising of risks from mishap, also vastly increased efficiency, as well of control as of lifting power. H. MASSAC BUIST.

TRAVEL · & EXPLORATION

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Dr. Sven Hedin's Explorations.

BY COL. SIR T. H. HOLDICH, K.C.M.G., K.C.I.E., C.B.

IN these days when geography has to be reckoned with as a living science, and explorers of the pioneer type cast about in vain for a space wide enough and white enough on the surface of the world's maps to justify the hope of geographical adventure, we all of us look forward with interest to the arrival in England of one of the latest of the world's geographical pioneers in the charming personality of Dr. Sven Hedin. And yet Dr. Sven Hedin hardly belongs to the famous old school of geographical explorers such as those who have ransacked Africa, traced out the Nile, and re-trodden the ancient highways of Asia during the nineteenth century; for he stands on an exceptional and, perhaps, more professional pedestal. Our greatest travellers have usually fared forth to face the unknown animated by something more than the mere spirit of adventure. They have been missionaries, sportsmen, or boundary makers, with a message to give, or a mission before them. Or they have been travellers travelling for the sake of discovery with but one central objective in view, such as the source of the Nile, the North Pole, or Mecca; and the attainment of that one objective has been or would have been the full satisfaction of their ambition.

When Sven Hedin first appeared in the field of Asia, the world was not then too old or too well mapped to leave him no space for new tracks across its rugged surface. He was as true a pioneer in the world of Asiatic exploration as any of last century's heroes in Africa, but he carried no message, and his objective was comprehensive, for it included scientific observation applied to every new feature that he encountered. This is the recognised form of modern exploration, and of it Sven Hedin

is an apostle and exponent. He may almost be regarded as a link between past and present. To him has been accorded the distinction of new discoveries in scientific fields which have opened up new leaves in the world's history, and where his footprints can be traced, there others have followed to perfect his theories, and work to a fulfilment chapters in the book to which he has put the preface. At the same time he represents the explorer of the future who goes forth armed at all points, so that on his return he may feed the hungry inquirer in such scientific departments as geography, archæology, ethnography, history, botany, geology, or even sociology.

Such a position in the world of scientific geographers is not to be attained without earnest study and patient application, and we are not surprised to find that Sven Hedin devoted years to careful preparation for his life's work. This is the great secret of his success. He started boldly where others before him had left off. There was no treading on the heels of his predecessors, no re-discovery of well-ascertained geographical facts, no time lost ; in short, he started business on true business methods, with due note of the experience of others. This appears to be Sven Hedin's teaching, and this undoubtedly is becoming more and more clearly the rule of action in the field of exploration, as that field becomes year by year more restricted to the scientific examination of special features.

Dr. Sven Hedin has enjoyed certain exceptional advantages. Apart from his own personal characteristics, his ability and energy, his enthusiasm and devotion to his work, and the physical constitution which enables him to survive where most other men would fall, he has always had the backing of geographical enthusiasts in his own country ; and he owes much of his success to the personal interest taken in him by that keen geographer, the late King of Sweden, and other less exalted persons, who have enabled him to play his game with a free hand, unembarrassed by financial or political conditions. It is such support as this which warms a man's heart in the desert or the ice field, and sets him on the edge of his best endeavour when difficulties arise out of cloudland to obscure his way.

In many ways Sven Hedin, the Swede, may be measured with Nansen, the Norwegian, or Prjevalski, the Russian, in those qualities of high scientific ability which characterise their work. We first hear of him in 1890, when he struggled to the summit of Demavend, the great volcanic peak of Persia. This was a test of endurance sufficient to satisfy any climbing enthusiast, and stamp him at once as a true mountaineer. After a preliminary visit to Kashgar, he returned to Sweden to prepare for the almost exhaustive series of journeys into the very heart of Central Asia which have since made his name famous. Starting in October, 1893, he

Dr. Sven Hedin.

From a photograph in the possession of the Royal Geographical Society

Map to illustrate Dr. Sven Hedin's Travels in Central Asia.

spent the greater part of 1894 in glacial researches in the Pamirs, especially investigating the relation between the snowfall and the volume of water in the Oxus tributaries. It was then that he made three unsuccessful attempts to reach the summit of the Muztagh Ata, the great "Ice Father" of the meridional ranges separating the Kashgar depression on the west from the Pamirs. Despite the fact that he never actually reached the summit (which, being 24,400 feet above sea level, is probably beyond the limit yet reached by any human being), his 20,000 feet of glacier investigations resulted in most valuable scientific results; for the Muztagh Ata is the highest known peak north of Kashmir, and exists under climatic conditions altogether apart from those which govern the Himalayas.

The winter was spent in Kashgar, and in February, 1895, Sven Hedin started eastward, exploring the country between the Kashgar and Yarkand Rivers, proceeding in April to cross the Takla Makan Desert between the Yarkand and Khotan Rivers. Never before had any known traveller attempted to exploit a course amidst the eternal sea of shifting sandhills from river to river, and this memorable expedition will ever rank in geographical annals as one of the greatest pioneer explorations of the nineteenth century. Who that heard the story can forget it? The tale of that little travel-worn bedraggled group, far beyond the last watering place, enveloped in dust, stumbling along through the dreary but agitated desert sea by crooks and roundabout ways with the "abomination of desolation" spread around and every trace of life departed, was a weird and pathetic one. "Not even a fly was to be heard in the air, not even a yellow leaf broke the monotony." And ever at their head was the sturdy figure of the Swedish explorer, compass in hand, still enthusiastic, guiding them as best he could through the death-shrouded wilderness. At length the camels had to eat their saddles and the last of the bread was gone. We need not recount all the horrors that followed. As men and camels dropped out of the line they were immediately enveloped in the whirling sand shroud and never seen again. The end came on May 5th, when Sven Hedin, crawling on all fours, dragged himself across the dry bed of the Khotan River. "All of a sudden a duck flew into the air and water splashed." Two of his followers were all that survived, and it seems doubtful whether even those two would have lived to tell the tale had not Sven Hedin carried back water for them in his boots.

After this extraordinary adventure, Dr. Sven Hedin set to work to re-equip himself for fresh exploration, and meanwhile paid another visit to the Pamirs, where he completed his topographical and geological survey of the rugged mountain system which is crowned by the Muztagh Ata. It was during the autumn of 1895 that he joined the camp of the

Anglo-Russian Boundary Commission, which was then busy with the Pamir demarcation. Here he was equally popular with both camps. Pitching his kibitka with great care exactly between Russians and English, he endeavoured to make it clear that he had no political bias, and that as a geographer and citizen of the world he was the scientific friend of both parties. It is hardly necessary to say that he succeeded admirably. His engaging personality, his fund of information (at the disposal of anyone interested in his work), his extraordinary command of languages, and his skill as an artist, attracted admiration from all who met him. I can see him now, enveloped by the thick blue atmosphere of tobacco smoke in the small but crowded kibitka which served the purpose of a cosmopolitan club. Cheeriest of the cheery, talking many languages to many men, keeping a watchful eye on the fall of the cards during the progress of the weird games which were played by that mixed company, he was as typical a professional explorer as could be found anywhere in the world of geography. With pen and ink he enjoyed an excellent facility, whether his subject were the conformation of glacial strata or the irregularities of Tartar costume ; and his fashion of dealing with the natives of High Asia was a worthy subject of study for us all. The ease with which Sven Hedin could make himself understood in a dialect which he had never heard before was doubtless due to his happy facility for finding out the names of things. He could extract information from any wooden-faced old Kirghiz dame with a sympathetic readiness that astonished the well-meaning English officer who found his best-intentioned efforts quite useless.

Dr. Sven Hedin's spirit of *camaraderie* and good-fellowship, however, did not extend itself to the sharing of his exploits and adventures with any companion. English travellers often, if not usually, work in couples. Not so Sven Hedin, who, like Stanley, knows how to discriminate between business and the sympathies and pleasures of congenial society. When the Commissions parted after sharing a loving-cup by the light of the biggest bonfire ever seen on the Pamirs, Sven Hedin took his way to Kashgar, and by the end of the year was again on his way to Khotan. He crossed the desert between the Khotan and the Keria, and traced the latter river to its termination in the sands. He then turned northwards, and after astonishing the world by the marvellous results of his excavations amongst the buried cities of the desert, he reached the Tarim River, made a careful survey of its intricate course, and proceeded to Lob Nor. There he reconciled the discrepancy between Prjevalski's account of the lake and its position as shown in ancient Chinese maps, by discovering a series of small lakes in a part of the Gobi hitherto unvisited. In May, 1896, he was again in Khotan, whence he struck south over the Kuen Lun, and having explored the unutterable wastes

Upper parts of Mustagh-Ata, the Great "Ice Father."

[By permission of the Royal Geographical Society.

of north-western Tibet (including Tsaidam and the Alishan Desert) he made his way to Pekin and returned to Europe *via* Urga and Siberia.

His subsequent history as an explorer during the years 1900–1902 opens up a new chapter and a new book (Central Asia and Tibet). It is, however, a new chapter dealing largely with old ground, namely the exploration of the Tarim Basin and scientific researches in the region of Lob Nor, ending with a further exploration of eastern Tibet and a determined effort to reach Lhasa. In this effort he failed, and his two years' journey ended at Ladak. The result of his researches round about the ancient town of Loulan on the edge of the desiccated Lob Nor, and his startling discovery of manuscripts and records which recalled the forgotten history of a world-famous commercial and pilgrim route through Gobi to the Buddhist centres of Turkistan during the first four centuries of our era, are alone sufficient to stamp this expedition as one of the most remarkable of modern times. His subsequent wanderings in Eastern Tibet, with its wearisome monotony of salt lakes, mud flats, rough mountains, and the eternal silence of a vast wilderness, were not free from stirring adventure and considerable physical danger. As Dr. Sven Hedin quaintly puts it, Tibetan travelling is " not a dance upon dropping petals of a rose " at any time ; but there was nothing in these stirring incidents to compare for thrilling interest with that first thirsty journey across the desert to Khotan.

The latest, and in some respects the most adventurous, of the explorations made by this truly indefatigable traveller, lasting from 1906 to 1908, deals entirely with Tibet. Prevented from crossing the Indian frontier by political considerations, Dr. Sven Hedin made Leh once more his base, and commenced by traversing the elevated northern plateau of Tibet in a south-easterly direction, from a point on the Kashmir side of the Karakoram Pass. After crossing the Aksai Chin Desert he struck out a route intermediate to those of previous travellers to Shigatze, in the Brahmaputra Basin, returning to Ladak by the Brahmaputra and Indus valleys, and exploring the hitherto unmapped sources of the great northern branch of the Indus on his way.

On December 4th, 1907, he made a fresh start into the unknown, under conditions which were rendered hazardous by the hostility of the Tibetan officials, and the fierce rigors of the Tibetan winter. Again he skirted the Aksai Chin Desert, and made straight for the unexplored district of Bongha. The terrific violence of the south-west gales, the incessant snow, and the low temperature ($-40°$ Centigrade at one period of the journey) would appear to be a combination such as would render travelling absolutely impossible did we not know that winter is considered rather a favourable time for travelling by the Tibetans themselves, owing to the rivers being frozen over. It is the great season for pilgrimage.

Dr. Sven Hedin. [By permission of the Royal Geographical Society.

A Yak Caravan.

After passing the Lemching Lake and the goldfields (which here appear to be deserted in winter) and picking up his old route at Tongtso, he plunged into quite a blank space in Tibetan mapping, to which he gives the district name of Bongha. Working his way almost due south, continually crossing ranges, he reached the Brahmaputra valley. It appears that during the greater part of the journey he had been dogged and watched by Tibetan spies. His disguise was of no use to him, for his existence with the party was evidently well-known. Finally he collided with Tibetan officials, and met with the usual peremptory request to return the way he came. There followed the usual discussion which, as on previous occasions, terminated much more favourably to his interests than could have been expected at its commencement. However he had to retreat towards Ladak, and occupied what may be regarded as his homeward journey in further investigations into the northern water parting of the Brahmaputra Basin, which he claims to have discovered to be a continuous range two thousand miles long. He reached Simla in the early autumn of the present year.

Probably no traveller since the days of Humboldt has amassed so much and so varied an assortment of scientific information from any region of the world's surface as Dr. Sven Hedin has culled from the depression of the Tarim Basin and the highlands of Tibet. It is impossible even to enumerate in detail the formidable list of subjects with which his scientific volumes deal. As a zoologist and botanist Sven Hedin disclaims any right to distinction, although he brought to the notice of experts large collections in the interest of both sciences. Here, to a certain extent, Prjevalski had been in the field before him, but Prjevalski's collections had never been studied by a specialist. As a geologist again he confined himself to the collection of rock specimens to illustrate the characteristics of the various ranges which he encountered without indulging in any comprehensive theory of their construction and of the evolution of the huge Tibetan uplands. His meteorological records are extensive and very valuable, for his observations extended over many years, and the instrumental records were taken three times a day. The extraordinary force and violence of the winds, raging from E.N.E. in the Lob Nor country about the time of spring, and the prevalent south-westerly winds in Tibet and their possible connection with the monsoon, are subjects of great interest to the students of Asiatic meteorology, and these investigations may very possibly throw light on the periodic changes of climate (the "pulse of Asia"), which have so profoundly affected the destinies of that continent. But human interest undoubtedly centres chiefly in the story of the past that has been buried for so many ages beneath the sands of the Takla Makan, and the wastes around the ancient Lob Nor. To Dr. Sven Hedin belongs the honour of first calling attention

to these buried cities of the desert. The relics which he brought to light in the supposed ancient bed of Lob Nor have stimulated a new field of research. We may expect soon to have that story completed by Stein.

In the field of morphology, topography, and map-making, it is impossible not to admire the industry and inexhaustible patience bestowed by him on his work as a geographer. His close examination of the process of sand dune formation, of lake filling and lake shifting, almost reveals a new science. The eternal procession of the sand waves before the relentless wind, and the formation of parallel chains of small clay-bottomed depressions called " bajirs," almost at right angles to the course of the Tarim, are not the least interesting of his expositions, although we may perhaps venture to doubt the influence of the latter in the universal process of desiccation which pervades all Asia at present.

It is, however, with Dr. Sven Hedin's splendid achievements in the field of geography that we are chiefly concerned, and we must await the fulfilment of his map records before it is possible to examine critically the foundation of his claim to rank as a great geographical discoverer in a new field. No record yet published tells us anything conclusive. Between the process of filling in the blank spaces of a half-explored and partially mapped area, and the discovery of some hitherto unknown feature of great geographical significance, there is a difference. But in this case the fact that so large an area is fairly well reduced to geographical map work is largely due to Dr. Sven Hedin himself, so that he may fairly claim to the chief place in the long list of explorers who have built up the map of Central Asia and Tibet. Nothing that he has done so far can exceed the interest of his investigations about Lob Nor and the buried cities of the past, even if the reconstruction of the geography of these regions hardly amounts to a fresh discovery. His latest work in Central Tibet is a most valuable exposition of the barrenness of the land in all but goldfields, and will no doubt help most usefully in filling up the horrid white spaces on the map ; but the crown of his late achievements undoubtedly consists in illustrating that which all Indian geographers long ago surmised—the analogy of construction between the Tibetan plateau beyond the Himalayas and the Himalayas themselves.

That there was a continuous divide, or water parting, across Tibet from the Tengri Nor westward parallel to the valleys of the Indus and Brahmaputra, forming the northern water parting of India, and exhibiting in more or less detail the parallelism of fold formation which governs the Himalayan system, was no doubt a certainty, for the peaks of that divide had been noted and some of them fixed by scientific triangulation. But that this divide should be represented by one solid continuous range is indeed a matter of surprise—if that is Dr. Sven Hedin's discovery. Such sketch maps as have appeared in *The Times*, etc., do

not make it so. Or if such a construction is intended, then certain large affluents of the Brahmaputra, such as the Charta Tsanpo, must break through that range. It would almost appear, however, to be a mountain system rather than a mountain range: a system where the original tectonic fold may possibly be indicated by the ordered line of highest peaks, but where an indefinite number of secondary ridges interfere with and obscure the disintegrated primeval backbone. Without detailed topography it is impossible to read this riddle aright.

This leads us to the ungrateful and ungracious position of pointing out the one weak point in Dr. Sven Hedin's methods as a geographer. He takes no topographer with him. That he should be able to complete his own topography under most of the conditions of his travels is an absolute impossibility. It takes years of training—careful and persistent training—to make a man a topographer; and once on the march it takes the whole of a topographer's time to secure efficient mapping. No leader of a party, however skilful, can do this for himself. In his earlier journeys Dr. Sven Hedin claims to have secured most surprising results by the use of "chronometer and compass," that is, by timing distances and taking bearings. Such methods of map-making are the last resource of the modern map-maker. Whether these are also the latest means adopted by Dr. Sven Hedin we do not know; but if they are, we venture to doubt whether he can prove the existence of a "continuous range" by the crossing of it ten (or even twenty) times. We are, however, bound to remember the circumstances which attended Dr. Sven Hedin's departure from India for the further exploration of his well-loved Tibetan highlands. Possibly (though it seems incredible) the Government of India (or the Government of England ?) were indisposed to assist him by lending the services of a native topographer. In that case it is a matter of surprise that he did not indent on the admirable staff of Russian topographers, who know so well their way about the regions to the west of Tibet.

A Winter Cruise in the West Indies.

By ALGERNON E. ASPINALL.

When I am asked "What is the best time of year to visit the West Indies?" my reply invariably is, "As soon after Christmas as possible." During the winter months the climate of the islands, which is nowadays quite healthy for Europeans, is particularly enjoyable, the extreme heat of the tropical sun being tempered by the north-east trade wind, which blows with great regularity from November until the end of March. It was in the winter that I was fortunate enough to make the tour of the

Cabbage Palms at Codrington College, Barbados.

Golden Islands of the West, including also British Guiana in my itinerary, and I found the weather conditions prevailing very similar, though preferable in many respects, to those to which we are accustomed in a really hot and fine summer in England; preferable, because in the West Indies sun-stroke is practically unknown, and because also the art of ventilation has been more closely studied there than it has at home, with the result that the heat in the West Indies does not cause the discomfort which it does in these latitudes. Whether Barbados or Jamaica be made the primary objective and the starting-point of a tour—and either island can be reached direct from England in less than a fortnight—

the voyage is one which need cause no apprehensions to sufferers from *mal de mer*, for though one may get a dusting in the Bay of Biscay, and sometimes a tossing off the Azores, it is the exception rather than the rule for bad weather to be encountered for more than a few days of the voyage ; and after passing these " Western Islands " the most confirmed sufferers are wont to appear on deck, the awnings are put out, and the more energetically inclined devote their time to the inevitable sports and pastimes as the ship glides over the smiling ocean.

Leaving Southampton on a Wednesday morning I reached Barbados

after an uneventful but pleasurable voyage on the following Monday week. Overnight we had seen the blinking light at Ragged Point beckoning us to the haven, and at daybreak we were at anchor in Carlisle Bay, witnessing a glorious sunrise over the island which has the proud distinction of being our only possession in the West Indies over which no foreign flag has ever flown. It must fall to more capable pens than mine to describe the surprises that await the traveller on his first visit to the tropics. Perhaps one is at first most struck by the remarkable profusion and luxuriance of the vegetation and the exquisite beauties of the scenery,

which are enhanced by the remarkable rarity of the atmosphere—the joy of the photographer; then there are the glorious Bougainvilleas, Pointsettias and Bois Immortels; there is the delightful fragrance of the spice-laden air which is so pleasing to those who have been on board ship for any length of time; there is the negro population, whose manners and customs, so different from what one has been led to expect, are an endless source of interest and amusement; and there is also the change of diet which, if not always for the better, has at any rate the advantage

Camping in the Bush in British Guiana.

of novelty, to say nothing of the proverbial hospitality of the planters, who with dances, race-meetings, tennis, polo, cricket and song contribute towards making the time pass all too quickly. It must be admitted that Barbados is less picturesque than its neighbours. The island is comparatively flat, but the waving Casuarina trees (*Casuarina equisetifolia*), the tall and stately Royal or Cabbage Palms (*Oreodoxa oleracea*), of which Kingsley wrote "It was not easy . . . . to believe that these strange noble things were trees," and the waving fields of

sugar-cane go far to make up for its shortcomings in this respect. It has, besides, numerous gullies such as those of Welchman's Hall and Lewis's, clad with tree-ferns, palms, cacao and spice trees, and every kind of tropical foliage. It has, too, its beautiful coral-fringed and surf-beaten windward coast, and perhaps best of all its ideal climate and complete immunity from malaria, which caused it to be the healthiest station for British troops within the Empire, and now makes it the recognised health resort for inhabitants of the neighbouring islands and one of the most agreeable places in which to make a prolonged stay.

Trinidad from the Gulf of Paria.

Two inter-colonial steam yachts—for so one might almost call them—await the arrival of the transatlantic steamer in the roadstead of Carlisle Bay, and later in the day one of them sails to Demerara and the other to Grenada, St. Vincent and St. Lucia, and to each one of the Leeward Islands from Dominica to St. Kitts, visiting also the French islands of Martinique and Guadeloupe. From Barbados I proceeded to British Guiana, which, although geographically situated in South America, is always regarded as an integral part of our West Indian colonies. Though the first appearance of the colony is not prepossessing—one sees through the haze a long and low coast line fringed with bush and scrub, and broken

here and there by the tall chimneys of the sugar factories—Georgetown, the capital, is quite an interesting town, and the interior of the colony deserves a far larger share of attention from tourists and capitalists than it has hitherto received. The front lands are below the level of the sea, from which they are protected by an elaborate system of trenches, canals, and dams, which were constructed by Dutch engineers in the days when the colony belonged to Holland. During a brief stay it is now possible to get a glimpse of the fertile hinterland by means of the small steamers

West Indian Subjects of the King.

which ply between Georgetown and Wismar, some ninety miles up the Demerara river, and those who can devote the time to the expedition can visit the superb Kaieteur waterfall, which is 636 feet higher than Niagara, and the fantastic Mount Roraima (8740 ft.) on the western boundary of the colony.

My next visit was to Trinidad, the most prosperous and one of the most beautiful of the islands, which lies off the delta of the Orinoco, about sixteen miles to the east of Venezuela. Rectangular in shape,

it has promontories at its four corners, two of which are extended towards the mainland and enclose the Gulf of Paria, which thus becomes an almost landlocked sea entered by narrow straits north and south. Those at the north are called the Bocas del Dragone (the Dragon's Mouths), and those at the south, through which Columbus entered, the Boca del Sierpe (or the Serpent's Mouth). Port of Spain, which is one of the best built and finest towns in the West Indies, nestles at the foot of forest-clad hills in an admirably protected situation. Between it and the hills, with their

A Fertile Valley in Dominica.

virgin forests, is the Savannah known as Queen's Park, an extensive open space of nearly 130 acres, which is the vortex of life in Trinidad and the fashionable residential quarter. Round its inner edge electric trams hum, and just before dark the rank and fashion of the city take their airing in buggy, landau, or afoot. Many interesting excursions can be made from Port of Spain to sugar and cacao estates ; also to such natural beauties as the Blue Basin, a small lake which does not belie its name, and receives a waterfall which plunges from the midst of dense tropical foliage, and the Maracas Fall, which splits itself into a veil of mist over a solid

rock 340 feet high. A visit, too, can be paid to that wonder of the world, the Pitch Lake at La Brea, from which over 130,000 tons of asphalt are annually exported. In Trinidad, as in British Guiana, the population is largely composed of East Indian coolie immigrants, of whom numbers have been imported annually, with a few exceptions, since 1845; their stronghold is the village of Peru, where Abercromby and Picton landed in 1797 when they captured the island from Spain.

From Trinidad to Grenada is only a twelve hours' steam. Besides

An Estates Cart in St. Kitts.

being the seat of government of the Windward Islands, Grenada is known to fame as the Spice Island of the West. Sugar is there a very minor industry, the staples being cacao and nutmegs. St. George's, the capital, straggles saddlewise over a promontory of the same name, the two sides of the town being connected by a tunnel. The inner harbour or careenage is almost encircled by densely wooded hills, on the lower of which is a chain of frowning forts long since abandoned, that recall to mind the Brigand War of 1795–6, when Victor Hugues, the friend of Robespierre, endeavoured to regain possession of the island for France by bringing

about an insurrection of the French inhabitants and slaves under that unmitigated scoundrel Jules Fédon, who massacred the Governor, Ninian Home, and forty-seven prisoners. On the road to the Grand Etang, a large freshwater lake in the mountains, the scene of the tragedy is pointed out. The neighbouring island, St. Vincent, has passed through many vicissitudes ; but fortunately its soufrière, which caused such widespread destruction in 1902, is again quiescent, and can be visited with impunity, while the establishment of a Sea Island cotton industry has restored a fair measure of prosperity to the island.

Basseterre Roads, St. Kitts, where Hood seized the anchorage from de Grasse, 1782.

St. Lucia, the third member of the Windward Islands confederation, is rich in historic associations. From Castries, the capital, an expedition can easily be made to Pigeon Island, from which the redoubtable Rodney kept watch on the French fleet prior to his memorable victory over Count de Grasse on April 12th, 1782. At St. Lucia the ship is coaled, and it is interesting to see the stalwart negresses with swinging gait ascending the gangway with the baskets of coal on their heads, for here, as at Nagasaki, the coaling is done almost entirely by women. The negroes carry every burden on their heads, and in this connection an amusing tale is told of one of Antigua's " absentee " proprietors, who was

visiting his estates in the island. Seeing the labourers carrying loads from the factory to the mill on their heads he was overcome with pity for them, and ordered a quantity of wheel-barrows, by using which they might lighten their labours. The barrows arrived, and the proprietor went down to the factory to see them used. The negroes were delighted. They were carrying not only their usual burdens, but also the wheel-barrows on their heads !

The voyage among the Leeward Islands is like a yachting cruise. The steamer is seldom out of sight of land. First there is Martinique, with its ruined city of St. Pierre, under the shadow of Mont Pelé, now silently sleeping ; then Dominica, the island of waterfalls and rivers, which has become the chief source of supply of the lime fruit and lime products ; Antigua, with its spick-and-span, though now deserted, English harbour, where Nelson refitted his ships during his pursuit of Villeneuve before the battle of Trafalgar ; Nevis, the erstwhile " Bath " of the West Indies, the birthplace of Alexander Hamilton, and the scene of the marriage of Nelson, who, when captain of the *Boreas*, was wedded to Frances Herbert Nisbett at Montpelier, the ruins of which are still shown. Then there is Montserrat, where the negroes speak with an Irish brogue, and lastly St. Kitts, which has a unique monument of the past on Brimstone Hill, a now dismantled fortress.

Adequately to describe Jamaica, which was the last island of call during my voyage, would require many pages and an abler pen than mine. By far the largest of our possessions in the West Indies, it offers almost every variety of climate and a wealth of scenic attractions. On Blue Mountain Peak, which rises to a height of 7,423 feet and is the culminating point in the superb range of hills called the Blue Mountains, hoar-frost is not unknown, while in the cantonments of Newcastle fireplaces are a comfort and blankets a necessity. Jamaica has the best hotels in the West Indies, and it is also the most accessible island. Every day one or more steamers leave it for American ports laden with bananas, and the island also enjoys direct fortnightly steamer communication with the United Kingdom, which renders it possible for the traveller with but little time at his disposal to spend a week in Jamaica, and only be away from home five weeks altogether. This naturally renders Jamaica a particularly favoured island in the eyes of British tourists, though the numbers who visit it from England still bear a very small proportion to the American visitors who flock to it in the winter season. Now, however, that the climatic advantages and the scenic and historic attractions of the West Indies are being more fully appreciated in this country, it is satisfactory to find that an increasing number of visitors from the Mother-country are spending their winters in the Golden Islands of the West.

Among the Veddas of Ceylon.

By C. G. SELIGMANN, M.D.

The Veddas are one of the few existing wild peoples of India who probably represent the remains of the original primitive South Indian stock of short jungle men who led a more or less wandering life, and lived on the game they killed and the yams and berries they gathered. The physical characteristics of the Veddas have been well-known for the past twenty years owing to the investigations of two Swiss naturalists, Drs. P. and F. Sarasin; but the urgency for a study of Vedda sociology had been obvious for some time when, in 1907, the Ceylon Government asked Dr. A. C. Haddon to select somebody to undertake such a study.

It was in consequence of this request that Mrs. Seligmann and myself reached Ceylon shortly before Christmas of that year. It had been known for a long time that the few remaining wild Veddas were extremely shy and jealous of strangers, and that they took elaborate precautions to prevent the latter seeing their unmarried girls and young married women, and before leaving Colombo we heard the most varied accounts of the conditions we should find in the Vedda country. According to many people, there were no genuine Veddas left; half-breeds and Village Veddas there were, and with these it would no doubt be possible to make friends. The other view referred to the extreme shyness of the hosts of Veddas who, clad only in leaves, still roamed about the wilder parts of the island; not only was it declared that we should not be able to find these, but it was pointed out that this was really lucky for us, for should we chance to surprise them we might expect to be riddled with arrows. As might have been anticipated, the truth as to the existence of "wild" Veddas lay between these two extremes, and it was by quickly visiting a number of settled Veddas by means of a motor car and ascertaining the direction from which they had come that a route was plotted which enabled the greater number of existing Vedda groups to be visited afterwards on foot, and ultimately led to satisfactory intercourse with a number of the few remaining Veddas uncontaminated by recent Sinhalese or Tamil influence.

We began our investigations by visiting the Coast Veddas, or "Verdas," as they call themselves. These people live along the mangrove-bound coast north of Batticaloa. They are all proud of their Vedda descent, but remember few of their customs. They have intermarried a great deal with the Tamils, and are taller than the true

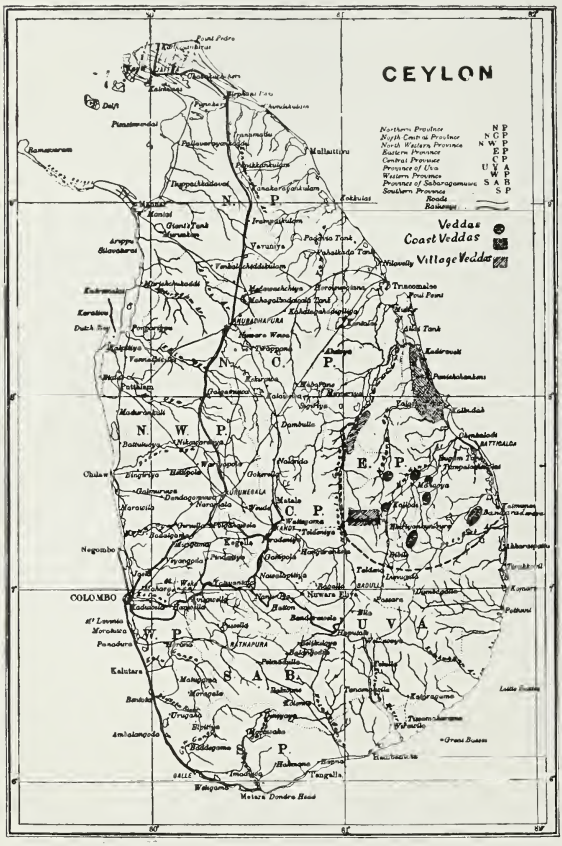
Veddas ; the women wear Tamil dress and jewellery, and would pass as Tamil women ; the Vedda features are more noticeable in the men. One extremely interesting development is that they have learnt to spear fish from their Tamil neighbours, but they also shoot fish with the Vedda bow and arrow, having prolonged the arrow to form a harpoon with a detachable iron head fixed to a running line. The accompanying illustration shows a portion of a settlement of these Coast Veddas, and an amusing incident arose in connection with the cone-shaped fishing net which is seen drying in the background. Although these people are largely fisherfolk, and have also fairly adequate rough cultivation patches, they lose no opportunity of asking the Government for more land for cultivation. When we went to their villages with a village headman

Coast Veddas at Parcheni.

as guide, they immediately set forth their extreme poverty, and begged that I would ask the Government to give them more land ; and upon my pointing to the net, showing that they gained their living largely by fishing, their spokesman without a moment's hesitation answered that that was merely a toy with which the children played.

I will pass from these people to the Village Veddas of Bintenne and Tamankadua, of whom we visited several communities. Unfortunately they are not very pure physically, as for a long time it has been the habit of the low-country Sinhalese who wished to avoid the law or their own people to escape to the Veddas and settle among them. On the other hand a few Vedda men, at least of the last two generations, have sought Sinhalese wives. The life of the Village Veddas differs very little from that of the jungle-dwelling Sinhalese, with whom they have intermarried,

and whom they more or less resemble in physical characters. Like them they build huts of sticks and bark, though some of the more advanced have learnt to make mud houses; they keep cattle, hunt a little, and practise the form of rough cultivation known as "chena," as do the jungle-dwelling Sinhalese. A patch of jungle is burnt and a crop of kurakhan, manioc, pumpkin, and other vegetables quickly taken off the ground, which is not planted more than twice. Collecting honey is also an important industry among Village Veddas, and though they scarcely take it from the rocks as do their wilder fellows, they prize it both as food for themselves, and also as an article of trade, which they barter with the "Moormen" who come regularly to their villages, bringing in exchange iron, cloth, beads, and pots.



Map to illustrate the distribution of the Veddas in Ceylon.

Unfortunately the most flourishing settlement of Village Veddas in which there was the least recent "foreign" blood was the "show" village of Dambani. Whenever any white visitor has wished to see Veddas, the Sinhalese headman of the district has taken some men from the village to the nearest rest-house, or for very distinguished visitors even to Kandy or Colombo, and there they have posed for their photographs, and shown off their "primitiveness." The consequence is that it is impossible to do any work with them as they perpetually demand presents, and try to impress their visitors with the simple life they lead, declaring they live only on honey, roots, and what they can shoot with their arrows, and that "they

would not allow a Sinhalese to come into their village ; they would shoot any stranger who dared to do so!" They repeated this formula to us, quite oblivious of the fact that we had seen their cattle and their chena, and that when we arrived at their village there were a couple of Sinhalese pedlars peacefully trading with them. As a matter of fact, their bows and arrows are mostly for show, as many of them possess guns. The one advantage of these people being so frequently shown off is that they have kept up their language, but though we took some pains to get vocabularies from them we were unable to obtain more than about forty words which were not obviously Sinhalese. Their accent and intonation are, however, different from Sinhalese, so that the ordinary Sinhalese villager considers it quite a different language.

Village Veddas.

Next in order to the Village Veddas come the true pure-blooded Veddas, described frequently as "jungle," "wild," or "rock Veddas." None of these epithets, however, quite meets the case. "Jungle" is inadequate because all Village Veddas live in the jungle ; "wild" scarcely describes them either, as even the most unsophisticated of them are really extremely gentle and courteous—"wild" enough only to attack strangers who might dare to approach their women—though doubtless in the old days, when they were more numerous, the Sinhalese stood in wholesome fear

of their arrows. But for many generations the "Moorman" pedlar has penetrated to the most remote settlements of these Veddas, bringing his wares in exchange for honey and dried deer's flesh. It is true that the Moormen are never allowed to enter the caves, for the Veddas are extremely jealous of their women, and at Sitalawanniya we were shown a place where the traders must stop and shout till a Vedda comes down from the cave in the hillside above to barter with them.

The Nilgala Hills, situated in a belt of magnificent park country some fifteen miles to the east of Bibile, are traditionally the heart of the Vedda country, but there are no Veddas at Nilgala now, although only sixty years ago Bailey persuaded the Veddas of Nilgala to make their first chena. Their descendants are represented at the present day by a few families at Danigala. The older members of these families are still pure-blooded, but they live less than twenty miles from a good road, and all have taken up the *rôle* of professional primitive man with enthusiasm. Though they have good gardens of their own, and even breed cattle, they pretended that the rude hut in which we visited them (really only a look-out hut) was the only one possessed by the several families we saw. Their young men and women are intermarrying with the Sinhalese, and, as might have been expected, we soon found that they remembered few of their old customs. Still, our visit to them was interesting, for these were the first pure-blooded Veddas we had seen, and we also learnt some of the difficulties we should have to contend with.

Later at Pidegodagalge Cave we met four families who lived entirely in caves and subsisted by hunting, but between them and the Danigala folk there are many stages. Many Veddas make chena and build huts on them, but still live a great deal by hunting, and often dwell in caves in the honey-collecting season. Good examples of such people are the Veddas of Kolombedda and Henebedda, several families of whom we met living in the caves named Bendiagalge. Our guide was well-known to them and they gave us an enthusiastic welcome. All the men came to meet us and led the way to the caves, which were completely hidden by a thicket. On the rocky platform in front of the cave the men all surrounded us shouting to their women to come and see their "white sister-in-law," or "cousin." A few of the Bendiagalge folk had married Sinhalese, but they were ashamed of it, and tried to conceal the fact from us. Veddas have always been renowned for their truthfulness, and this reputation we are able to endorse, except in cases such as the above, and among the "show" Veddas. The Henebedda and Kolombedda Veddas are well off, as they live in the country where there is still plenty of game, "iguana" (*Varanus sp.*) and honey.

Although Veddas do not like to remain long in one locality, their wanderings have definite limits. Each community has its own hunting-

ground, and adheres strictly to its own game rights. Upon each hunting-ground there are a number of caves and rock shelters, and the families of the community move from one to another throughout the year, as the presence of game, honey, yams, or fish demands. The big caves are communal property, the smaller caves usually belong to single families ; but even in the communal caves each family has its particular place in which its members sleep, cook, eat, and keep all their belongings. Each family respects the privacy of its neighbours' few feet of the cave floor as faithfully as if partition walls existed ; only the children roam all over the cave at will. Food, however, seemed to be public property, for one

Bendiagalge Caves.

woman would cook food and share it with everyone present in the cave. This may probably be explained as follows : The communal caves are situated in common hunting-ground, therefore all the game, yams, iguanas or honey brought in from the common land is the property of the community, not of the man who procures it.

I have stated that the smaller caves are usually private property. It would probably be more correct to say that Veddas possess private hunting-grounds on which very frequently there are small caves, such caves being then the property of the owner of the land. When a man is living in his own cave in the midst of his own hunting-ground, the produce

of the chase would naturally be his own, though doubtless it would be shared with anyone living with him. We never heard of quarrels arising over the division of food; indeed, the Veddas' extreme generosity in food matters was particularly striking. We naturally gave them food for the day whenever we prevented the men from going out hunting, or the women from seeking yams, and the food we gave was always equally shared. Women and children fared always as well as the men,

View across Vedda Country from Bendiagalge.

and it was said that the former would be fed first in any time of scarcity; indeed, the dainties were often saved for the children. When two men who had come down to our camp were given some bananas we were surprised to see them put the fruit in their betel bags, and asked if they did not care for bananas; but they explained that bananas were a special delicacy, and so they would take them to the cave for their children.

Even among the wilder Veddas fire is usually produced by flint and

steel traded from the Sinhalese, though in an emergency it may be obtained by friction from two pieces of wood.

Before concluding with a brief *résumé* of the ancestor worship of the Veddas, I must say something about honey collecting, which plays an extremely important part in the life of the Vedda. Honey is obtained from the small stingless bee, and from the bambara, or rock bee. The former may be domesticated. A Vedda in the Henebedda chena settlement showed us some stingless bees in a gourd hanging outside his hut, which he said he was keeping for his small boy, and though we never saw them kept in the caves, we were told this was sometimes done. It is however on the honey of the dangerous bambara—Kipling's little people of the

Drilling Fire.

rocks—that the Vedda most depends, and collecting this is no easy task. The bambara build in trees and rocks, the largest combs being always in the rocks, and it is in taking the honey from these that the Veddas are exposed to dangers against which even Vedda pluck and Vedda agility may not always avail. The bambara always build on the perpendicular face of a rock, some nests being in too difficult a position for even a Vedda to reach. But the Vedda begins his training young, for mock honey collecting is a favourite game in which the lads are helped and encouraged by the elder men. At Bendiagalge the young men were only too eager to show us how it was done, pretending there was a nest under the overhanging ledge of their own cave. The whole drama was enacted with such spirit and thoroughness that we

felt assured that it was no new game got up for our benefit. Even the make-believe honeycomb was carefully divided among those who had taken part in the play, who pretended to eat it, and then washed their hands. In this case two men squatting on the flat top of the rock bore the weight of the ladder of creepers and the youth who descended it. Two other caves we visited were situated on the sides of hills, a sheer rock face in each case rising above the cave for forty or fifty feet, while above this was jungle. At each of these caves a ladder of creepers hung from a convenient tree trunk in the jungle above, put there expressly for the boys to play at honey collecting, and thus learn one of the most important arts of life.

On the psychical side, the life of this folk is unusually limited in every aspect except one, namely, their regard for the dead, and even this regard, which attains the intensity of a cult, has given rise to no decorative art; indeed, a number of crude drawings, for the most part of animals and men, executed on the walls of certain caves, were the only examples of decorative art seen, and personal adornment is at the lowest ebb. But although this cult has produced no pictorial or plastic art, it has given rise to a series of dances, often pantomimic, and so, perhaps, in the nature of imitative magic. Whether pantomimic or not, the dances are accompanied, except in certain exceptional circumstances, by offerings of food to the spirits of the departed.

To understand these and the ceremonies to be presently described, it is necessary to consider the Vedda attitude towards death. Although there is no clearly formulated idea of a death contagion, the rapidity with which all Veddas leave the place where a death has occurred, and avoid it for years, shows that some evil quality is associated with dissolution. According to most Veddas, the spirit of every dead man, woman, or child becomes a "yaka" (plural "yaku") within a few days after death. Some Veddas, however, say that when ordinary folk die they cease utterly, and that a surviving part, which becomes a yaka, exists only in the case of especially strong, energetic, or skilled men, who have shown their strength of character in this world, or who have had the power of calling the yaku during their lifetime. Since each Vedda community consists of a small number of families, usually related by blood and marriage, the yaku of the recent dead—called collectively the Ne Yaku—are supposed to stand towards the surviving members of the group in the light of friends and relatives, who, if well treated, will continue their lovingkindness to their survivors, and only if neglected will show their disgust and anger by withdrawing their assistance or even becoming actively hostile. Hence, it is generally considered necessary to present an offering to the newly dead, usually within a week or two of death. This offering must consist of cooked rice and cocoanut milk, the food that

every Vedda esteems above all other, but betel leaves and areca nuts are often added. In each community there is one man, called "kapurale," or "dugganawa," who has the power and knowledge requisite to call the yaku, and this man calls upon the yaka of the recently dead man to come and take the offering. The yaka comes, and the kapurale becomes possessed by the yaka of the dead man, who speaks through his mouth in hoarse, guttural accents, stating that he approves the offering, and will assist his kinsfolk in hunting, and often definitely indicating the direction

Dance outside Bendiagalge Cave.

in which the next hunting party should go. One or more of the near relatives may also become possessed, but this is not necessary. Soon after the spirit leaves the kapurale the rice is eaten by the assembled folk, usually, but not necessarily, on the spot where the offering was made.

The above account represents the simplest, and probably a degenerate form of death ceremony, but usually the matter is complicated by the invocation of certain other spirits besides the Ne Yaku. Many

generations ago there lived a Vedda called Kande Wanniya, a celebrated hunter, who on his death became Kande Yaka, and is constantly invoked to assist in hunting. The majority of Veddas believe that the Ne Yaku go to Kande Yaka and become in some sense his attendants. With Kande is often associated his younger brother, Bilinde, now Bilinde Yaka. Now Kande Yaka and often Bilinde Yaka are generally invoked at the beginning of the Ne Yaku ceremony, and it was pointed out more than once that the Ne Yaku could not come to the offering unless accompanied by Kande Yaka, who was even spoken of as bringing the Ne Yaku. Some informants also stated that immediately after death the spirit of the deceased resorted to Kande Yaka and obtained his permission to accept offerings from his living relatives.

The illustration on the previous page shows a rehearsal got up for our benefit of one of the Vedda dances, in which the spirits of the dead are invoked.

Our work among the Veddas lasted some five months, during which time we not only came thoroughly to appreciate the courtesy, frank friendliness and generosity of the wilder Veddas, but learned something of the troubles of the less wild members of this vanishing race. In Uva Province, where they are exempt from taxation, no doubt all is as well as may be in the face of the rising tide of civilisation and their declining numbers. But in the Eastern Province many of the Veddas are incapable of sustained monotonous effort and suffer from continual want. The annual tax of Rs. 1.50 is generally collected by a Sinhalese headman, often frankly unsympathetic, and the chance of a Vedda grievance reaching headquarters is slight.

One positive advantage of our journey was that when the conditions I found were brought to the notice of the Government agent, the tax was remitted to certain families, while I believe that additional chenafacilities were sometimes granted. In truth, the half civilised Vedda of the Eastern Province presents a difficult problem. He is on the swift road to extinction and nothing can save him. His voice does not reach headquarters, being drowned in the clamour of the coast Veddas, who are really quite well off. I do not see how efficient reservations—that is, reservations respected by the Sinhalese—can be formed, and if all taxation were to be remitted every low caste villager would call himself a Vedda.

Hunting in Central Africa.

The Sportsman's Outfit.

By F. C. SELOUS.

During the last thirty years a most marvellous change has come over the once dark and mysterious continent of Africa, a change which has made accessible to the traveller and the sportsman vast areas of country which could formerly only be reached after long months of tedious and often perilous journeying. Railroads now run through territories the physical features of which were but dimly known to European geographers a quarter of a century ago, whilst steamers ply on all the great lakes and rivers which until recently had never been navigated by anything larger than a native dugout canoe. Then, powerful native chiefs ruled in the land, and forwarded or thwarted the ambitions of European travellers at their pleasure. Now, south of the Sahara and the ancient kingdom of Abyssinia, European magistrates have taken the place of the native rulers, and speaking generally a white man can travel anywhere throughout the length and breadth of Africa without fear of molestation by the natives.

Under present conditions, therefore, a hunting trip can be undertaken to almost any part of the interior of Africa not only in a marvellously short space of time, but also under conditions of comfort and safety unknown to the old pioneer hunters. Luxury is, I think, out of place on a hunting trip, but good wholesome food and moderate comfort should not be despised, as they will materially help to keep a man fit and well in a country where he would be sure to suffer from fever if ill-nourished and exposed to unhealthy conditions. The following hints as to the equipment advisable for a hunting trip to the interior of Africa are not addressed to the rich or luxurious, who can afford to travel with an army of porters and engage at high wages professional shikaries who will do all the hunting save the actual shooting, but to young men who have no money to spend on superfluities or needless luxuries.

First as to camp outfit. Although in many parts of the interior of Africa it is no hardship to travel without a tent of any kind during the dry season, when no rain may fall for a period of six or eight months, yet in the more rainy zones, and in wet weather in any part of the country, a tent is not only a great comfort, but of very material assistance in keeping off fever. In my opinion, however, a tent in Africa is of no use

except as a shelter at night against rain and heavy dews. The heat of a tent in the daytime is unbearable, and it should always be pitched near some shady tree or bush, beneath which one can sit and read or write, or prepare natural history specimens. There are, of course, many different kinds of tents of various sizes, weights, and prices, for each of which special advantages are claimed. The only tent I have ever used myself—in Africa, Asia Minor, and Sardinia—is of the kind known as the "Whymper" tent, which I have no hesitation in recommending, as I consider it in every way excellent, and all that could be wished for as a

Whymper tent used by Mr. Selous in East Africa.

night shelter for a single traveller. The weight of a Whymper tent with poles is about thirty pounds; it is very easily and very quickly put up, and has a canvas floor in one piece with the rest of the tent which is very useful in wet weather. For tent furniture all that is necessary is a light stretcher with or without a horsehair mattress, a small pillow, two or three warm Jaeger blankets, and a folding canvas bath. A light folding table would often no doubt be found a great convenience, but I look upon such a piece of camp furniture as rather in the nature of a luxury, as a provision box may be made to serve the same purpose. I would, however, strongly recommend every traveller to take with him a light

folding chair, which will be found a great comfort after a long day's marching or hunting.

Another indispensable requisite of African travel is a mosquito net. There are large areas of the highlands of Africa, even under the equator, where for months together one may never see or hear a mosquito, but in other parts of the country they are very numerous, and the constant irritation of mosquito bites and the consequent want of sleep are, in my opinion, very detrimental to health and predispose the sufferer to fever, whether the mosquitoes are of the species which carries the bacillus of malaria or not. The best and simplest form of mosquito net is the following : Take a piece of strong unbleached linen six or seven feet long and three feet broad as a roof, and sew all round it mosquito netting of a depth of six feet. Let there be a tucker at each end of the linen roof through which a stick can be run. When sleeping in the open, to set up such a mosquito net it is only necessary to cut four sticks with forks at the top and plant them firmly in the ground, two at the head and two at the foot of the bed. Then two native spears can be run through the tuckers at each end of the linen roof of the mosquito net, and the protruding ends of the spears fixed in the forked sticks. The netting will hang all round the bed, and can be tucked under the blankets. Inside the tent the net can either be fixed up on rods placed at each corner of the stretcher, or hung over it by means of cords fastened to the canvas inside the tent. Such a mosquito net will only weigh one or two pounds, and is easily carried. The netting itself, however, must not be ordinary mosquito netting, but some kind of muslin of a close mesh, for in some parts of Africa midges and sand flies are far more numerous and far more irritating than mosquitoes, and these tiny insects can get through the mesh of ordinary mosquito netting without any difficulty.

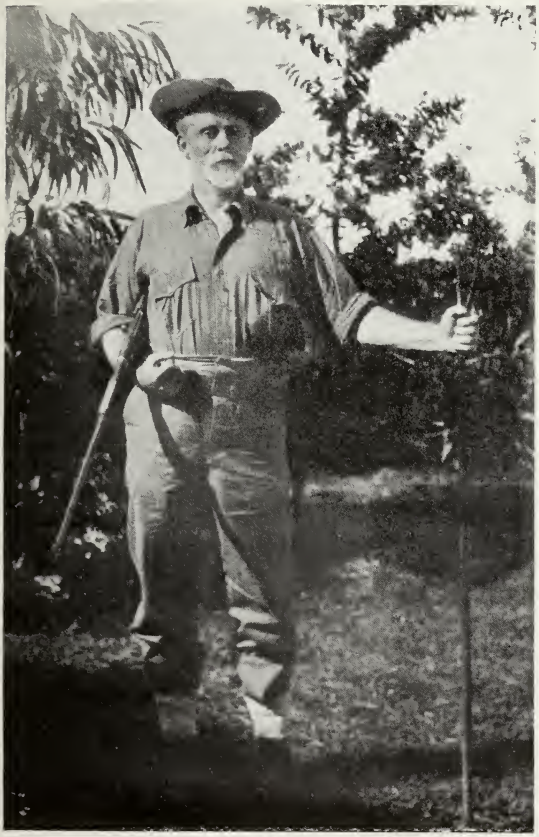
As to clothing, the point to remember is that in Africa, during the greater part of the day all the year round, the sun is very powerful, but the nights, as well as the early mornings and late evenings, are often very cold. You want, therefore, to be lightly clad in the daytime, but always to have a really warm coat near at hand to put on as soon as the air gets chilly. Every precaution ought to be taken in Africa against getting a sudden chill, especially if one has suffered at all from malarial fever, and in this connection I would strongly advise travellers to sponge themselves over with warm water in their tents rather than bathe in a stream of water, the temperature of which after a cold night may be much lower than that of the air. Boots are a somewhat important item of a sportsman's outfit, and on this subject there is of course a vast diversity of opinion. I myself strongly recommend for hunting on foot in Africa boots or shoes with very thick red indiarubber soles, strongly sewn on to an inside leather sole. Such boots greatly increase one's chance of getting

within sight of shy game in forest or scrub bush, as they are more noiseless than any other kind of footgear, and in my experience indiarubber soles of the best quality wear much better than any kind of leather.

As to cooking utensils an ordinary traveller does not require anything but the following : First, two frying pans, one large with a stiff handle for making some kind of bread, and a smaller one with a folding handle for frying meat. In addition to the frying pans I myself never carry anything but three aluminium saucepans which fit one inside the other, with one detachable handle for all three. The largest of my saucepans is seven inches in diameter by five inches high. Of course, to make proper bread a baking pot will be required, but such a pot is heavy and cumbersome, and the bread one can make in a frying pan is quite good if eaten fresh. Tea or coffee can be made in one or other of the aluminium saucepans if necessary ; but a good-sized kettle will not greatly increase one's burden and, perhaps, looks more appropriate. Two or three of the light tin buckets with handles and lids, which are sold in what are called " nests " of six fitting one inside the other, will be found useful for boiling water for washing up, and also for cooking if required. They have the great advantage of being both cheap and light. A couple of canvas buckets for bringing water to camp, and a dozen canvas water-coolers for carrying water when out hunting or on the march, will be found most useful, and a good-sized enamelled iron dish should not be forgotten. This can be used both as a wash-hand basin and for kneading bread—though this can be accomplished in the large frying pan—as well as for washing up cups and plates. These latter should be made of enamelled iron.

I now come to the matter of firearms, a question upon which there is such a wide diversity of opinion that I should be very ill-advised to speak dogmatically ; yet I do not think I am giving bad advice if I say for elephants, rhinoceroses and buffaloes trust to a double .450 cordite rifle by a good maker, and for all other kinds of African game use one or other of the high velocity small-bore rifles which have been found effective in the hands of many well-known big game hunters. I recommend the .450 bore cordite rifle for very heavy game on the great authority of my old friend, the late Mr. A. H. Neumann, who in the course of his wonderful career had killed elephants with large-bore rifles shooting black powder as well as with an ordinary military .303 modern small bore. Mr. Neumann assured me that no large-bore black powder rifle he had ever used was anything like so effective as the .450 bore cordite. It is, perhaps, only natural that if an inexperienced sportsman wounds and loses an elephant or buffalo with a .350, .400, or .450 bore rifle, he will believe to the day of his death that had he been armed with a weapon of larger calibre he would have bagged the lost animal. To such I can only say that in the old days in South Africa, when only heavy four-bore guns, taking immense charges

of black powder and four-ounce round bullets, were used for elephant hunting, great numbers of these animals escaped from their pursuers after having been wounded. There seems good evidence to show that elephants can be easily killed with body shots by an experienced man with a rifle of considerably smaller bore than .450. I have before me a copy of the *Rhodesian Herald*, in which is given a full account of the killing of a large number of elephants (eighty-one) in the Lo Magundi district of Mashonaland last June by a party of Dutch hunters. Of this number fifty-seven are said to have been killed by the leader of the party, Mr. Jan Viljoen, with whose grandfather, one of the old voorkekkers, I was once well acquainted. At the end of the article it is stated that "Mr. Viljoen was armed with an eight millimetre Mauser sporting rifle (which is practically a .310 bore), and most of the animals slain were killed with the first shot, the bullet striking behind the shoulder."



Mr. F. C. Selous.

From a photograph taken at Naivasha, British East Africa, by Mr. Bagge.

A friend of mine, too, who has been hunting for many years past in different parts of Central Africa, and who has killed a good many elephants, has found a Winchester .405, which is a very cheap rifle, a most effective weapon against these animals. For hippopotamuses, which are shot in the brain when in the water, as they raise their heads to breathe, and for all kinds of antelopes from elands downwards, as well as lions, leopards, chetahs and wild dogs, a small-bore rifle, either a Mannlicher Mauser or Lee-Metford, or a .350 or .375 bore made by some

well-known firm, will each and all be found most effective weapons. Therefore to the intending African sportsman I will say, choose one or other of the many good small-bore rifles obtainable for all soft-skinned animals, and if you can afford it also take a double .450 cordite rifle for the heaviest game ; but if you cannot afford such an expensive weapon, take in its place a .405 repeating Winchester.

When a fair shot can be obtained at a lion it can easily be killed with a small-bore rifle if hit in a vital spot ; but if a lion should be only wounded and get out of sight in bush or grass, the hunter should take his heavier rifle in hand when following on its tracks. It must always, however, be remembered that when a wounded lion charges at close quarters he cannot be stopped by a grazing shot through the side of the mouth or head or shoulder from even the heaviest rifle. He must be hit fair and square in the head to be dropped in his tracks, and even if shot through the heart when charging at close quarters, I think a lion might quite possibly still come on and kill or badly wound his antagonist. I have seen a buffalo bull make good his charge after receiving full in the chest a four-ounce bullet which cut through the side of his heart. Opinions no doubt differ considerably as to the best kinds of bullets to use for different species of game. Personally I believe in what are known as "dum-dum" bullets, that is, solid nickel-covered bullets with the lead just exposed at the point, for all but the heaviest kinds of game. These bullets expand well, but do not break up into small fragments. For elephants, buffaloes and rhinoceroses I would recommend solid bullets completely enveloped in a nickel covering.

In the matter of food and drink each one must follow his individual taste. It is quite possible to live fairly well and keep one's health in many parts of the interior of Africa without carrying an ounce of tinned provisions, relying on one's rifle for one's meat supply and buying from the natives all that they grow in the shape of vegetable food. I did this for many years myself when hunting in the Zambezi regions, without any ill effects, but as the facilities for obtaining and transporting supplies are now very different from what they once were, I would advise every traveller or sportsman to carry with him a good stock of foods of the kinds to which he has grown accustomed, such as flour, rice, oatmeal, biscuits, butter, jams, dried fruits for stewing, tea, coffee, sugar, and tinned milk. In most parts of Africa game of some kind, either antelopes or guinea fowls, can nearly always be obtained without difficulty, so that it is not necessary to carry large supplies of tinned meats and soups ; but it will be well to carry a good supply of lard and bacon for cooking purposes, as African antelopes are, as a rule, very lean. It would be as well, too, to carry some soup tablets, bovril, tapioca, or cornflour in case of illness, and a limited amount of tinned foods to be used in times of

scarcity. As to drink, I myself never drink anything but tea either at home or abroad, and I have never carried a single bottle of spirits with me on a hunting trip either in Africa or North America. But tastes differ, and I am inclined to believe that some constitutions may derive benefit from drinking a glass of whisky every evening when in a district where fever is rife. Tea is a good drink I am sure in all climates, all the better because the water has to be boiled before it can be made.

Cavendish's Dik-dik.

Champagne is said to be very useful in bad cases of fever, but it is not every traveller who can afford to carry such bulky restoratives.

The only diseases to be feared in Africa are malarial fever and dysentery, and it would be well for every traveller to learn something as to the nature of these maladies and their best and most up-to-date treatment before leaving home. I think that it is quite useless for the ordinary man to burden himself with a heavy medicine chest, the greater part of the

bottles in which he is never likely to open. Let him content himself with a supply of quinine and other approved remedies for fever and dysentery, and also carry a small bottle of carbolic acid crystals in case of a bite by a lion or leopard. That will be about all the medicine he is likely to require for himself. But in addition I would carry Epsom salts or croton-oil pills for natives who have overeaten themselves, as also some zinc ointment and iodoform to dress the sores with which these people are often troubled.

In dealing with African natives my advice is "be slow to anger and of great kindness." Palpable insolence can, of course, only be met in one way, by swift physical punishment. But try never to lose your temper and strike or kick a "boy" because he is stupid, perhaps most aggravatingly stupid, in doing something you have told him to do. The poor fellow is very likely doing his best, and before long may become a very useful and faithful servant. Do not believe that the African natives are incapable of understanding kindness, or that they are devoid of all sense of gratitude. I know from long experience that that is not true. The man who treats them kindly and justly will certainly get on with them and find them loyal and faithful to him. Small offences should not be too harshly judged, and should be punished rather in accordance with the African than the European idea as to the heinousness of the offence. Never to break a promise to an African even in the smallest and most insignificant matter, and never to ask or allow one to take a risk—say in following dangerous game—that one is not prepared to take oneself, are two golden rules never to be forgotten. In fact, to get on well with the natives of Africa, most of whom are very good-natured fellows, and some of whom are among the bravest and most loyal men in the world, it is only necessary to be a "gentleman," using that word in its true sense and not at all as a social qualification.

One final word of advice I would give to young sportsmen, though it may be said that I now preach what I once did not practise, and that is to be as sparing as possible in the matter of killing game. It must be remembered that the rapid spread of civilization throughout Africa during the last quarter of a century, which has made almost every portion of that continent so easily accessible to-day, has naturally exercised a disastrous influence on the game in many parts of its once apparently limitless hunting-grounds, some of which have been occupied by European settlers, while in others, such as Abyssinia, Somaliland, Bechuanaland, and Barotseland, the natives have become possessed of large numbers of firearms. The chief charm, the great distinction of Africa, has always been the vast wealth and variety of the animal life which once lent so much of interest and beauty to an otherwise dreary, sun-scorched wilderness. In many parts of the country the game

has gone, and for evermore the land will remain as dull and colourless as a flower-bed in winter.

There is still, however, much game left in Africa, a very large proportion of it in territories under the British flag, and it should be the pride of every Englishman who visits these countries to behave in a sportsman-like manner, doing nothing to deplete unnecessarily the stock of wild life. The sportsman is, of course, now subject to laws and regulations. These laws and regulations cannot, however, be thoroughly effective if they are not scrupulously observed in the spirit as well as in the letter. By this I mean for one thing that a man should shoot to kill and not risk merely wounding, for I hold that a sportsman who wounds and loses through bad or careless shooting a number of animals in addition to those which he kills has broken the spirit of the law, which aims at the protection of the game, even though he should only bring out the number of heads to which he is entitled by his licence. Therefore I would say to young sportsmen, do not be too eager to shoot, and do not shoot at all unless you feel pretty sure of killing the animal you are firing at. If, however, you only wound an animal follow it up as long as you can track it, no matter what the expense in time and fatigue may be.

Ski-ing in the High Alps.

By ARNOLD LUNN.

Addington Symonds, who went to Davos for his health, and Leslie Stephen, who visited the Alps as a climber, were among the first to describe the beauties of Switzerland in her winter setting. It is only, however, in the last fifteen years that the Alps have begun to prove a serious rival to more southern winter resorts. Until 1895 Grindelwald, St. Moritz, and Davos were practically the only centres open in winter. A few enthusiasts, chiefly summer climbers, and their friends gathered together at Christmas and indulged in tobogganing and skating. In the eighties ski were absolutely unknown, and it was only in the early nineties that the Canadian toboggan displaced the more primitive Swiss *schlitten* Till that date *lugeing* had been a delightfully unsophisticated sport. Mountain paths and village byways were utilised as runs. Races were few and far between. In a word, people tobogganed for the fun of the thing, not to break records. But the Canadian toboggan had come to stay. Tobogganing changed from a pastime to a science. The village run has been displaced by a "Cresta" that costs thousands to maintain. The tobogganer of to-day is armed like a knight going into battle. He is padded, and his feet are adorned with iron rakes. His steed is a model of scientific build, not an ounce too heavy. He starts at a given signal, and his run is measured by an electric clock to a fifth of a second. His one ambition is to win the "Grand National," on which, by the way, there is an enormous sweepstake.

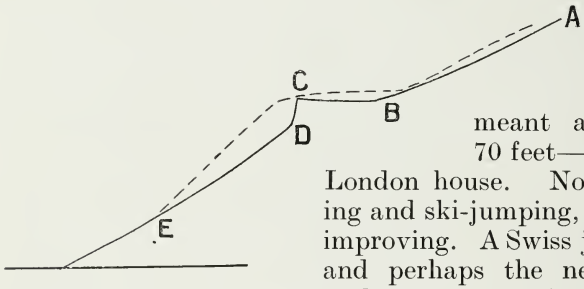
Skating is the oldest of the Swiss winter sports. In the opinion of its devotees it is the most aristocratic. For years a fierce battle has been waged between the English and Continental schools. Those who belong to the English school of skating believe in performing their turns with the minimum of body motion. The Continental style is more showy, and, perhaps, more graceful. One result is that an easy three in Continental style to the uninitiated appears more difficult than the hardest turn in English style. But, of course, skating is not the only sport on the ice. Curling, "the roaring game," is now largely played, and a great event of the Swiss winter is the annual bandy match between Davos and St. Moritz. Hockey on the ice is probably the fastest game ever played. It is essentially different from land hockey in that the bug is pushed rather than struck.

[P. Horne, Phot.

Lunching on the ice at Villars.

To my mind, however, ski-ing is the king of all winter sports. Norwegian in origin, it was only introduced into Switzerland in the early nineties. Davos skaters sneered at the "plank hoppers," but the ski had come to stay. Year by year the number of its devotees increases. Ski-ing can be divided into three classes: mountaineering on ski, ski jumping, and ski-kjoring. The first I will deal with later. Ski jumping is the most sensational form of the sport. As so many quaint conceptions prevail in England as to what jumping on ski really means, perhaps a rough sketch will not be out of place.

The illustration depicts the section of a typical jumping hill. The ski jumper starts from A and runs down to B. B to C is the take-off, some few yards in length, and is often tilted slightly upwards. The impetus thus gained sends the jumper flying through the air from C to E. The length of the jump is measured from C to E, or, what is practically the same thing, from D to E. As the slope of the hill is usually something like 30°, the vertical height fallen through is just one-half of D to E. Thus the record Norwegian jump, 134½ feet, meant a vertical fall of nearly 70 feet—about the height of a high London house. Norway is the home of ski-ing and ski-jumping, but the Swiss are rapidly improving. A Swiss jumper has cleared 90 feet, and perhaps the next generation will prove a dangerous rival to Norwegian supremacy. Considering that ski were unknown in Switzerland twenty years ago, the rapidity with which they have been taken up is nothing short of marvellous. A regiment of the Swiss Army is trained in the use of ski; in many districts the postman goes his rounds on ski, and I believe I am correct in stating that in some Swiss schools ski-ing is now taught.



Ski-kjoring is largely practised at St. Moritz. A ski runner is pulled along over the snow by a horse. The difficulty consists in turning corners. Needless to add, ski-kjoring is the sport of the rich.

As I remarked above, till 1895 Grindelwald, St. Moritz, and Davos were practically the only winter centres open. But by the end of the last century Caux, Les Avants, Chateau D'Œx, and Chamonix had been added to the list. The first two are popular resorts above the Lake of Geneva. Chateau D'Œx lies on the Montreux-Oberland Railway, and is a good centre, though, like Caux and Les Avants, it is not a starting point for first-class winter climbing. Chamonix needs no introduction. In 1902 Adelboden was opened, and proved an immense success. I spent

three very happy winters there, and thoroughly explored its ski-ing hills, which are excellent from every standpoint. Since 1902 Montana, famous for its panorama and sun, Engelberg at the foot of the Titlis, Lenzerheide, Kandersteg, and Villars have been added to the list, and this season has seen the opening of Morgins and St. Beatenberg.

Kandersteg is a magnificent centre for high Alp ski-ing. Thence you can climb the Balmhorn, Blümlisalp, and Wildstrubel on ski, or you can traverse the Petersgrat to the Valais ; but for beginners it is not so good a centre as Adelboden. Villars is good for cross-country runs. You can reach Montana in four days, Adelboden in two, Chateau D'Œx in two.

St. Moritz Lake in Winter.

Engelberg is also a fine centre for ski-ing. It is the base of operations for the Titlis—a magnificent winter expedition.

And now the ground is clear to describe what to me at least is the most fascinating of all possible pursuits—mountaineering on ski. I have shown above how tobogganing was orginally an unsophisticated amusement, and how it has evolved itself into a scientific game, whose devotees are athirst to lower records. But mountaineering on ski is the purest, the least artificial of all sports. It is primitive and simple. The mountain-side is substituted for an artificial and costly ice-run. There is no

elaborate apparatus. There are, alas, no ladies to applaud. There is no "gate money," and there are no records to lower, no tests to pass. Those who go up to the hills on ski are actuated by the simplest of motives. They are merely obeying the irresistible call of the snows. They ski simply because ski-ing is, to paraphrase Newman, "the outpouring of eternal harmony in the medium of created motion." But even the joys of the run home are not their greatest reward. The mountains are something more than a mere instrument for physical pleasure. The long lowland evenings are haunted by a thousand memories that cannot be translated into words—the hush of the snows at dawn, the music of the winter sunset, the silent beauty of the moonlit glaciers.

And so to those who are contemplating a visit to the Alps in winter no better advice than this can be offered: Do not be content to spend all your days pottering round an orange on a rink, or repeating *ad nauseam* a run down the same artificial toboggan-run, but buy a pair of ski. In a few days you will have mastered them enough to attempt a small expedition. In a few weeks the snow-covered hills will be your heritage. Yours will be the right to wander wherever and whenever there is snow.

Winter mountaineering on ski has made rapid progress. Mont Blanc and Monte Rosa, the Jungfrau and Finsteraarhorn have all been conquered by the aid of ski. From the ski-runner's point of view mountains accessible on ski can be divided into two classes—those such as the Wildstrubel and Wildhorn, on which ski-ing slopes lead to the summit; and those such as the Grand Combin by the Valsorey arête, in which the ascent is completed on foot. The latter class is the best, as it combines ski-ing with rock climbing. It will probably surprise summer mountaineers to learn that rocks facing south-west, south, or south-east are in a better condition in winter than summer. In winter the atmosphere above 8,000 feet is absolutely dry. The rocks are always free from "verglas," and usually from snow. Very often in High Alp ski-ing one meets with what is known as "inverted temperature." The temperature above a certain level rises instead of falling as one ascends higher, and consequently the temperature on the summit of Mont Blanc is sometimes higher than that at Chamonix. This phenomenon, which often lasts for days together, is of immense value to the climber. It can usually be predicted by means of the weather reports.

Of course the winter climber must be prepared to face intense cold. He may, as M. Roget did on the Combin and Chardonnet, sit in his shirt-sleeves on the highest summits in mid-winter, but there will be long periods of the most penetrating cold. His most uncomfortable experiences will probably be the nights passed in club huts. I have a lively recollection of a night last year in the Wildstrubel hut. The hut, as we

[F. A. M. Noelting, Phot.

The Matterhorn from the Furggen Glacier.

found it, was full of snow. We cleared most of this out, but had to leave some in the top bunk. When the fire was at last alight, this began to thaw, and when we retired it descended upon us in the form of pattering rain. The fire soon went out, and with sixty degrees of frost six thousand feet lower down we had a pretty cold night.

The beginner will be some time before he attempts High Alp ski-ing, but in the meantime he will find from whatever centre he selects at least a dozen expeditions of lengths varying from four to ten hours. He will do well not to neglect the question of kit. Many an expedition is spoiled through preventable causes. Novices seldom realise the importance of *good* gloves. As the beginner spends a large portion of his time in the snow he will do well to carry at least one pair of spare gloves. A woollen helmet to pull over the ears and chin is

indispensable. Boots —here ladies are great offenders — should be large enough to admit at least one additional pair of thick socks. Goat-hair socks are delightfully warm, and can be bought at most Swiss centres. If the beginner intends to take up mountaineering seriously, he will do well to remember that what is good enough for a Norwegian is not necessarily good enough for the ski-mountaineer. Much annoyance would be avoided if ski-runners realised that High Alp and Norwegian ski-ing are as the poles asunder. In Norway the slopes are for the most part comparatively smooth. In the High Alps the ski-runner should be in a constant state of suspicion. He will have to travel over every variety of ground, glacier, snow-covered ice, snow-covered earth gullies, slopes covered with rock, boulders large and small. It is no use choosing ski of a Norwegian pattern for Swiss work. Norwegian ski are long, light, and narrow. The climber's ski should be short and

[W. A. Moore, Phot

On the Way to the Wildstrubel.

broad; lightness will have to be sacrificed to durability. Breaking one's ski in Norway is a nuisance; a broken ski near the top of the Jungfrau may mean a night on the mountain. Particular care should be devoted to the binding. A ski binding may fit beautifully in a nice warm shop and be useless on the mountain top. The best fastening for Alpine work is simple, strong, and easily duplicated. It should be such that it can be put on and taken off in a couple of minutes, and—an often neglected point—one should be able to adjust it without removing one's gloves.

[F. A. M. Noelting, Phot.

Sunrise on the Furggen Glacier (10,825 ft.).

There are three prominent dangers in winter mountaineering: avalanches, frostbite, and the possibility of being benighted. The danger of frostbite can be minimised by a careful attention to boots and gloves. The danger of spending a night on the mountain is far greater, and far more serious than in summer. In January you have about ten hours of actual daylight, possibly even less; in June you have sixteen or seventeen. And in winter a night on the mountains will probably mean death to some or all of the party. Only very strong constitutions can stand the strain of a fourteen-hour night in the open with possibly fifty degrees of frost.

But winter mountaineering on ski rewards the climber out of all proportion to the dangers and hardships he must meet. Let me try to give a brief picture of a typical long winter expedition

The insistent voice of the alarm clock rouses you at 3 a.m. Half-an-hour later "the empty corridors are full of forms of fear." Like Agag, you must tread delicately, for climbers are apt to be unpopular in the early hours. Breakfast is not a cheerful meal. Even Mark Tapley would be rather depressed at 3.30 a.m., and you are only too glad to turn out into the night. Across the valley a large mass looms

[F. A. M. Noelting Phot.

Sunset on the Adler Glacier.

out of the darkness, blotting out the stars. You find it almost impossible to identify it with the peak whose proportions have been perhaps impressed on you by hours of strenuous toil. These phantom ranges belong to another world. As you force your way through the forest you realise the full force of—

> "The silence that is in the starry sky,
> The sleep that is among the lonely hills."

Suddenly a huge mass begins to mould itself out of the darkness. The outlines of the mountains become more defined. Behind a row of clear-cut shadows the East is gradually growing in colour. The light spreads. For some minutes an army of sentinel peaks shine with strange brightness

above the valleys still bathed in deep sleep. Then suddenly some western height catches the message of the sun, and flashes it down to the lower snowfields. Around you the snows are bathed in a harmony of colours. The day is begun.

It seems incredible that down in the valley there are people who are actually asleep! As you rise higher you may, perhaps, catch a glimpse of the rink. Ant-like, a series of small figures is moving round a sheet of ice some few acres in extent. And now you are slowly winding your way up the mountain. Your leader is experienced, and chooses the angle of the ascent with an eye to the climbing powers of the weaker brethren. Perhaps there will be a small glacier to cross, and ski will have to be left at the bottom of the last rock scramble. When the summit is reached you will have leisure to contrast the summer and winter views. To my mind the Alps in December are infinitely more beautiful than in July. The Architect of the Universe has been at work softening the cruder effects of summer, making the barren place beautiful, replacing broken lines by curves blending in perfect harmony. And the panorama is far clearer than its summer rival. Range after range is defined distinctly, yet with no trace of harshness.

The run home will tax every power, mental and physical. You must have an eye to country. You must choose in a moment which line to take; and moreover, you must learn to recognise the phases of the snow, or a sudden change from fast to sticky snow will result in disaster. Possibly you may have frequent falls, but nothing can touch the joy in your heart. As the last lingering rays of light are fading from the snows you will re-enter the hotel door. There you will find skaters discussing the terrors of the "B" turn; tobogganers chatting airily of "Scylla and Charybdis," curlers—well, what curlers talk about is known only to themselves. Days spent on rink or toboggan-run have a sameness. You may remember certain incidents of glory or the reverse—the moment you did your first back bracket, the day that you shot over "Shuttlecock." But every expedition of the ski-runner lives in all its details long after the Alps are nothing more than a memory. If even the climber does not solve the riddle of the Universe he at least has moments on the hilltops when life assumes unsuspected values. He brings back from the mountain a broader outlook and carries with him to "the roar of the commonplace" memories in themselves a joy that passeth all understanding.

Some Aspects of Morocco.*

By E. ASHMEAD-BARTLETT.

After a short stay in Morocco the traveller will remark two not easily reconcilable facts, the one the surpassing richness of the country, the other the surprising ignorance and barbarity of the people. Morocco possesses almost every natural advantage. The climate is equable and temperate for ten months of the year; there is an abundant rainfall throughout the greater part of the country; the soil is so fertile and the sun so warm that three crops can be raised in a year. Yet this country, two hours from Gibraltar and within three days' easy steam of England, remains undeveloped and in a state of mediæval barbarism, whilst Northern Africa from Algeria to Egypt, under the guidance of Europe, is steadily advancing in the path of progress. There is not a mile of railroad in Morocco; there are no roads worthy of the title; wheeled traffic is still unknown; and the coast towns are connected with those of the interior by wretched, ill-defined tracks made by countless generations of caravans. The rivers have still to be bridged, and the traveller may find himself held up on the banks of some turbulent and flooded stream which, a week before, he was able to cross without wetting his feet. Yet no real obstacles stand in the way of making a good road from Tangier to Fez except the native conservatism of the Mohammedans, who are suspicious of all change; and any ordinary engineer, with the assistance of some hundreds of labourers, could make in a few months a motor ride possible from the coast to the capital.

Essentially an agricultural country, Morocco lacks the simplest implements for tilling the soil. There are no steel ploughs, and the soil is merely scratched with sharp stakes attached to logs, which are drawn by mules or bullocks, or sometimes by women. The tribesmen are quite content to produce in this primitive manner a sufficiency of food for themselves and their animals. The dwellings of the Moors, with the exception of those who live in the towns, consist of miserable huts of straw, decrepit canvas, or old sacking, which the owners share with their donkeys, sheep, dogs, and hens. The most ordinary household comforts, such as beds, tables, chairs, knives, forks, and spoons, are wanting, and if the traveller discards a useless bottle there is an immediate rush to secure this priceless addition to the domestic establishment. The ground is the only resting-place of the weary; a single bowl placed in the centre contains the food of all, and round this the family gathers, helping themselves with their

* Written from Fez.

fingers. The majority of the poor live on bread and any roots they may find, and their only drink is water or, if funds are momentarily plentiful, green tea flavoured with mint and sweetened with sugar.

The ex-Sultan Abdul Aziz outside the gates of his Harem, Rabat, October, 1907.

The wide plains of Morocco supply an abundance of pasture to vast herds of cattle, sheep, goats, and camels, but the stock is of poor quality, and fresh blood is badly needed. With modern methods of agriculture, and with a proper system of rotation of crops, the rich, almost virgin, soil (for the surface has merely been touched) would produce unrivalled harvests, and Morocco would become one of the great wheat-raising countries of the world; even now, with a minimum of labour and with the humblest of implements, a population of ten millions is kept in abundance, and hunger and starvation are almost unknown, although the mass of the people are miserably down-trodden and poor.

The towns of Morocco, so picturesque from the exterior on account of the uniform whiteness of the houses, the flat roofs, the imposing mosques and minarets, and the antiquity of the walls, are wretched, overcrowded dens of dirt and squalor, once the outer gates are passed. Even Fez, the capital, founded as far back as 788 A.D., which was regarded as the centre of culture and learning when Europe was plunged in the darkness of

the Middle Ages, can hardly be called a desirable dwelling-place. The streets, so narrow that only one laden horse or mule can pass at a time, are positively dangerous to pedestrians and horsemen, for they are made of loose stones and pieces of rock with a gutter in the centre, down which the water pours, rendering them rivers of mud and filth. When I add that open drains, viaducts, decaying refuse, and dead animals are all to be encountered in a short stroll, the squalor, discomfort, and stench can be imagined. Fez has an excellent water supply, both from its river and from numerous springs, but little care is taken to safeguard it in course of distribution, and the majority of the citizens are quite content to drink from the same tank in which they perform their ablutions. The

The ruins of Shella Rabat.

city is densely populated, and 145,000 people live in a space which in England would be considered large enough for 20,000. Thus it is not surprising that disease periodically sweeps off large numbers of the inhabitants. The infant mortality is very great. Even the art of building has been lost, and the modern dwellings of the East would do credit to any suburban jerry-builder; masonry, carpentry, and plastering are all rotten.

Morocco would be a useful country for horse-breeding if only care were taken to import some good sires, and to weed out the countless useless stallions. The Barb is the most shapely of all horses, but the present-day stock are of poor quality, and are lacking in stamina. The Moor attaches

more value to the mule than to the horse, preferring him on the road on account of his more even gait ; but here again no care has been taken to procure a valuable breeding stock, and really fine mules are rare. The Arabs of fiction are always portrayed as passionately attached to their horses, but in reality they are the most heartlessly cruel of all races in their treatment of animals, and are ignorant of the most elementary matters connected with their care. Their cumbersome saddles, placed on a layer of ten blankets, and with a high peak before and behind, serve no useful purpose. They are uncomfortable, difficult to climb into, and heat the horse unnecessarily. No care is taken to adjust properly the girths, and their constant chafing, with that caused by breastplates and breechings—indispensable adjuncts of the Moorish saddle—make terrible sores. The bit for both horse and mule is similar, and is an instrument of torture, being designed to enable the rider to stop in the space of a few yards while going at full speed, in order that he may make himself ridiculous by firing his rifle, throwing it into the air, and catching it before admiring spectators.

This custom, common throughout Morocco, is always described as "picturesque," "something you mustn't miss," or "the national pastime" by writers and guide-books, and is known as "powder play." How many realise what tortures the animals go through during its performance ! The spurs of the Moorish cavaliers consist of pieces of pointed steel six inches in length, and they regard it as a *sine quâ non* of expert horsemanship to dig these into their steeds until the flanks of the unfortunate animals are a mass of blood and festering sores ; in fact, it is rare to see a horse in Morocco without blood streaming from its sides and mouth, and its back covered with sores. The majority of the horses and mules have to subsist on irregular feeds of chopped straw, with an occasional measure of barley. The result is that they lack stamina, and become exhausted even after a moderate day's work. The Arabs are in reality poor horsemen, sitting with their knees tucked up under their chins, and kept in position by the peaks of their saddles ; indeed, if you put them on ordinary hunting saddles and asked them to trot or canter, the majority would promptly fall off. The pack mules and pack horses have an even worse time than the ridden animals. They are made to carry excessive loads, and the huge pack saddles made of straw are badly designed, and allow the load to press heavily on the ribs of the animal until it gasps for breath. On a journey lasting many weeks these pack saddles are never removed, either during the night or day. They produce fearful sores, and if these were once exposed to the air it would be impossible to replace the packs. It may be said of Morocco, without hesitation and without exaggeration, that if a civilised government could be suddenly introduced, the entire male population,

as a preliminary measure, would be run in and convicted by the Society for the Prevention of Cruelty to Animals.

Morocco, which during the Middle Ages was superior to Europe in culture and literature, has sadly retrograded during the last four centuries. Fez, the capital, still possesses many excellent institutions, such as schools, hospitals, public baths, and Old Age Pensions, which might formerly have served as models for Europe ; but now there is little left save the memory of better times. I think there are four principal causes to explain the decay of Morocco : (1) the disastrous effects of the Moham-

A Moorish Cattle Market.

medan religion on individual and national enterprise and energy ; (2) a corrupt and effete Government ; (3) the entire lack of harbours and safe anchorages along the coast ; and (4) the surpassing richness of the soil, which will produce in abundance anything planted in it, and which consequently allows an easy-going, pleasure-loving population to live in comfort with a minimum of labour.

I will deal with each of these assertions in detail. The Mohammedan religion is not conducive to progress. Its early vitality, which caused it to sweep over a large portion of Europe, Asia, and Africa in the space

of a comparatively few years, is long since dormant. The fatal doctrine of a pre-ordained future, which imparts a dignified calm and outward serenity to all Mohammedan peoples, is fatal to enterprise and progress. Time becomes of no object; the delight in striving after better things and the spirit of fierce, sustained competition are entirely obliterated, for either success or failure leaves the individual in the same state of peace and contentment with himself and all mankind. Throughout all Mohammedan communities this same decay and enervation are manifest. True, there have lately been the unexpected revival of Turkey and the attendant agitations for reform in Persia and Egypt, but how far these are the genuine progress of nations towards enlightenment or merely the revolt of discontented factions against oppression and autocracy it is too early to say. At present there is no sign that the reform movement has spread to Morocco.

Of the bad government of Morocco it is somewhat superfluous to speak. It has obtained a world-wide and unenviable notoriety. It possesses the worst features of a corrupt bureaucracy, combined with the oppression and insubordination of the feudal system. The Sultan grinds the great caids as far as he dare, the great caids grind the lesser, and so on down the social scale; and the unfortunate tiller of the soil has to support by his industry the whole corrupt edifice. He makes no effort to improve his lot, for he knows to his cost that should he display a little more energy and perseverance than his neighbour, and consequently produce better crops or more cattle, and acquire some wealth, all, except the bare amount required to keep body and soul together, will be taken from him by his superiors. Thus there is no incentive to industry. The Sultan's authority is of the most precarious character, and some of the tribes take a pride in refusing to acknowledge it, so that a minimum of taxes is paid, and the revenue of the country is far below what it would be under a strong administration. But even the sums collected are devoted to no good purpose. Everybody round the Sultan is "on the make"; corrupt ministers steal the public funds and mortgage the finances of the country to the foreigner in order to fill their own pockets; and every favourite expects his perquisite out of all that enters the Palace gates. At the present time, when signs are not wanting that under a stronger and more enlightened Sultan Morocco might hope for better times, the jealousy and squabbling of the Great Powers stand in the way of the opening up of the country through individual enterprise; for, unable to decide amongst themselves what share of the spoil each shall take, they have placed barriers round Morocco's free development which are unprecedented in the history of any other community.

Morocco, so rich and fertile, with a seaboard stretching its entire length, does not possess a single harbour capable of accommodating the smallest

craft, or even an anchorage where ships may lie in safety. Tangier is an open bay, exposed to the full force of the Atlantic rollers. There is no quay at which vessels may discharge their cargoes, and all merchandise must be landed in barges. This laborious process has to be entirely suspended even in a moderate sea. A German company is engaged on some small harbour works, and has built a small breakwater where fishing craft can lie at anchor. Larache, forty-eight miles south-west of Tangier, has a bar which small steamers can pass in fine weather and anchor in the calm waters of the river ; but there is no dock or quay, and unloading must be done from barges. Casa Blanca is another open roadstead with

The Hassan Tower.

absolutely no shelter or facilities for landing, and during the winter communication with the land may be closed for weeks at a time. Masagan is little better than Casa Blanca. Mogador is somewhat more fortunate. In front of the town is an island, and between it and the mainland is a stretch of protected water in which vessels may anchor and discharge their cargoes throughout the year. Owing to the entire lack of harbour facilities the trade of Morocco, whether export or import, has not advanced in a manner commensurate either with the size, richness, or needs of the country, and although year by year there is a steady increase, no great improvement can be looked for under existing conditions. Large

sums will have to be expended on harbour works—if, indeed, such are practicable—before a millennium of trade prosperity can be hoped for.

The question naturally arises : Can Morocco at this stage of her history break away from the traditions of the past and work out her own salvation, or must it be accomplished under alien rulers, backed by alien bayonets, as in the case of Algeria, Tunis, and Egypt ? I am afraid the answer to the first part of the question must be in the negative. It is impossible to change the character and habits of a people, except by inducing them

Mr. Ashmead Bartlett.
Mr. William Maxwell. Mr. Walter Harris.

At the Tomb of the Sultans, Rabat.

to adopt a new system of education which will accustom the younger generations to reforms and institutions from which their forefathers recoiled. But, as has been the case with so many other communities, the whole weight of religious intolerance is thrown into the scale against any change in existing methods. The observance of their religion is the very foundation of the life of Mohammedans, and there are no signs that the vitality of the spiritual side of the Prophet's work is weakening. For instance, what other religion can point to the observance of such an

exacting rule as that of the Fast of Ramadan, when for an entire month the whole nation refrains from eating or drinking between the hours of sunrise and sunset ? Yet, if it is impossible to introduce a voluntary change of education, only one alternative remains, and that is to force civilisation on the people by force of arms, as in Egypt, Tunis, and Algeria. Either Morocco must be taken in hand and gently coerced by shrapnel and bayonet, or she will continue to remain an eyesore on the path of enlightenment. A few years ago it seemed certain that France, on account of her compact with England over Egypt, and by reason of her strategical position in Algeria, Tunis, and Senegal, would be the chosen instrument of progress in Morocco. The Act of Algeciras, which was supposed to safeguard the independence of the country for all time, and to place the interests of all nations on an equal footing, has postponed the inevitable day. But sooner or later Morocco must pass under the control of one of the Powers. The prospect from the purely English standpoint is somewhat melancholy, and we can only hope that every care will be taken to maintain the open door, otherwise one of the most valuable markets of the future will be lost to us.

The Moors are worthy of civilisation. Physically and mentally they are a splendid race. When instructed and organised they become excellent workmen and labourers, as all who have seen them at the ports handling a cargo will testify. With proper instruction and discipline they would become soldiers as good as, if not better than, those which the French have turned out in Algeria. Morocco, with its temperate climate, fertile soil, and excellent water supply, should be supporting a population of forty or fifty millions instead of eight or ten, and should become one of the world's great cattle and wheat markets. The mineral resources are still an unknown quantity, though plenty of copper has been discovered, and there is said to be gold in the south. Time will surely bring great changes, but the traveller will be well rewarded by seeing for himself the possibilities of this distracted land.

The Back of Europe.

A Trip to the Carpathian Oil Fields.

By CLAUD G. STEEL.

In the summer months of 1906 and 1907 I had occasion to visit, in company with a friend, a remote and little-known corner of Europe, the Eastern Carpathians. Among European oil-producing centres this district ranks second only to Baku. For hundreds of years past the northern slopes of the Carpathians have been known to contain petroleum, but it was not till the end of the Nineteenth Century that the region was opened up and developed.

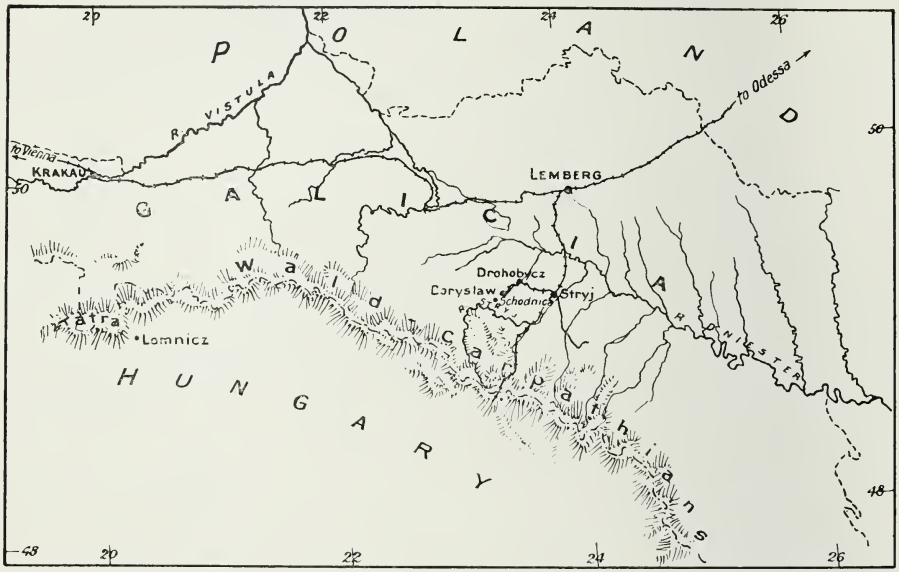
There is certainly little inducement for the ordinary tourist to visit this part of Europe. The journey, whether *via* Berlin or Vienna, is long and expensive; the country, though beautiful in the mountainous districts, is for the most part flat and monotonous; while the ordinary advantages of civilisation, in the shape of good hotels and cooking, are conspicuous by their absence. Those, however, who for business or some other reason are compelled to visit the Carpathian oil fields, will find that there are many compensations for the difficulties and discomforts they have to go through, and after two summers' experience of Galicia I would be the last person to say that the pleasantest prospect in that country is the railway line leading back to Vienna.

It takes sixteen hours to get from Vienna to Lemberg, the capital of Galicia. The scenery on both sides of the railway is very impressive. The sombre pine woods, the vistas of endless uninhabited steppe, and the vast tracts of swamp make one appreciate the weird sadness of Slavonic music and understand the underlying pessimism of Tschaikovski and Chopin. Leaving Vienna at ten o'clock at night, the traveller reaches Lemberg, or Lwów as it is called in Polish, soon after lunch the next day. This town is the emporium for the trade from Russia, Bukowina, and the whole of the Eastern Carpathian district, and in its superb railway station—a veritable palace of marble and mosaic—converge the trunk lines from Odessa, Vienna, Czernowitz, Constantinople and Budapest, as well as the military railways connecting with the Russian frontier.

The journey from Lemberg to Drohobycz through Stryj affords a typical specimen of Galician scenery. Shady pine forests, that give a welcome relief from the blazing sun, are succeeded by large open meadows over which wander flocks of geese and storks, and by stretches of open

marshy country watered by the Dniester and dotted here and there with herds of cattle and half-wild horses. As the train draws up at the numerous wayside stations, little barefooted peasant girls, some of whom are very pretty, run along the sides of the carriages selling glasses of water at ten hellers apiece. These children are Ruthenians, and look very like the gipsy children of England. Many of these people lead a nomadic life, moving with their herds of cattle from one common to another, and letting their children of both sexes roam about in a state of nature in search of alms from passers-by.

As the train reaches Stryj, a busy junction whose sidings are filled



Map of part of Austria-Hungary.

with tank waggons belonging to the various Galician oil companies, you catch a distant glimpse of the Carpathians, here a broad, low range of forest-clad hills, but rising to a greater height in the west, till they culminate in the rocks of the Tatra between Krakau and Lomnicz. They look very lovely with a blue heat haze hanging over them at the end of a long June day, and in spite of all the squalor of the oil fields and their inhabitants, they leave a lasting impression of calm beauty on the memory.

When we reached Drohobycz, a carriage from the oil refinery was waiting to carry us to what was to be our home for the next six weeks. Never

shall I forget that drive ! I had talked of bringing a bicycle to Galicia, but it would have remained at Drohobycz Station. The road leading from the station to the town, which is two or three miles distant, was a sea of indescribable mud, which covered us from head to foot as the Polish coachman lashed his horses to a canter. Apparently the roads in Poland are never metalled or macadamized in any way whatever, but we discovered during our stay in Galicia that the mud, bad though it was, was infinitely preferable to the choking, blinding dust, that rises off them in dry weather.

Market Place, Drohobycz.

The town of Drohobycz exhibits the usual contrast of fine public buildings and miserable tumble-down cottages. It was a bright summer evening as we drove through the market place, where the crudely painted signboards over the shops, the brilliant headdresses of the women, and the rows of green enamelled pottery in the booths, produced a striking colour effect. The Polish coachman never slackened speed for an instant, the Jews scattered hurriedly on both sides of our track, and the lumbering oil waggons, warned of our approach by his sharp cries, had barely time to turn into the gutter as we plunged and jolted through the mud towards the outskirts of the town.

On the crest of the hill beyond Drohobycz we saw before us the chimneys and tanks of the large oil refinery which was to be the goal of our journey. In a few moments our nostrils were assailed by an odour almost overpowering in its intensity—that of unrefined petroleum. It is scarcely an exaggeration to say that it takes quite three days to overcome the feeling of nausea produced by this repulsive smell, but after nine weeks' experience of Galicia we came to the conclusion that unrefined naphtha was by no means the most unpleasant of its many odours. We certainly had every opportunity of accustoming ourselves to it. It assailed us at every turn. Our food seemed to be flavoured with it; our bath water was impregnated with it as well as with more noxious substances; and it even seemed to have penetrated into the sodawater syphons which bore the legend of Budapest on their labels. Sleeping in the precincts of the refinery was a strange sensation. We were surrounded with great grey tanks of petroleum and benzine, sufficient to blow up a whole city, and cool and invigorating though the nights were, we lost most of the benefit we should otherwise have derived from them owing to the swarms of mosquitoes that hung around the river and necessitated our sleeping with our windows closed.

Oil Derrick and Reservoirs, Boryslaw.

Starting early the next morning, we found a carriage waiting to convey us to Boryslaw, where the principal oil wells are situated. The physical discomfort of those drives was considerable. To the joltings of an aged, springless victoria were added those produced by the capricious undulations of the river bed and the road over which we had to pass.

Our daily journeys were rendered far more exciting after the frequent thunderstorms, to which the whole district is subject, for then the river banks would in many cases be washed away by the raging torrent, and the fords became so deep that it was necessary to stand on the seat of the carriage to avoid being soaked.

The first view of Boryslaw is certainly not attractive. It is hemmed in by a bastion of huge oil cisterns, painted white or grey to keep the oil cool during the hot weather. You see nothing of the town itself, only hundreds of derricks, or boring towers, which give the whole district a gaunt and unprepossessing appearance. I had been told that Boryslaw

Workmen's Dwellings.

was the dirtiest place in Europe, and from my own experience of that extraordinary town I have no reason to doubt the veracity of the statement. The squalor and filth of the main street almost baffle description. The houses have been built on the refuse of the Ozokerit mines, and in the majority of cases have sunk below the level of the street. There is not a solid brick or stone building in the whole of Boryslaw, and many of the houses are in a state of partial or entire collapse. The unpleasant aroma that obtruded itself upon us, as we drove up the main street, testified to a total absence of any system of drainage, and the workmen's dwellings on either side, where the night-shift men lay huddled on piles of verminous mattresses and filthy rags, looked as

inferior to the average London " doss " house as a pigstye is to a palace. Along one side of the street is a raised wooden pavement, and beneath it runs a ditch into which abominations of all kinds find their way; but the chief cesspool of Boryslaw is the small oily stream which trickles through its midst. On the banks of the stream refuse of a more solid nature is cast; the rickety market booths are erected alongside of it, and in its viscous waters the laundresses of Boryslaw ply their trade.

The inhabitants are scarcely less remarkable than the place itself. Here are congregated Englishmen, Canadians, Polish nobles, Hungarians,

Oil Derricks on Fire.

Germans, specimens of every branch of the Slavonic race, and above all —Jews. Poland may be likened to the carcase of a lion that is being devoured by maggots. The simile is not a pleasant one, but a visit to Boryslaw will show how apt it is. The whole of the oil business passes somehow or other through the hands of the Jews, and the great majority of it is directly controlled by them. Poles and Canadians may drill the wells, Englishmen and Germans may control the offices, but the Jew has the land, the Jew has the money, and the Jew has the whole of the Galician retail business.

The contrast afforded by the surrounding country to the sordid scenes

just described is very remarkable. A few yards beyond the last houses of Boryslaw the road takes a sudden bend over the river, which is here a picturesque little mountain stream, and brings us to the sleepy village of Mraznica lying among the fir woods at the very foot of the Carpathians. Mraznica was once an oil centre, as is proved by the grass-grown machinery and abandoned derricks standing in the forest clearing, but Mraznica has had its day, the oil has ceased to flow, and it has relapsed into its primitive condition of a small mountain village. Beyond Mraznica the road winds in steep gradients up the first ridge of the Carpathians. The scenery is very beautiful, and the vegetation strikingly luxuriant. From the summit there is a wonderful view of mountain and plain. At your feet lies the village of Schodnica, formerly the chief oil producing district in Galicia, but now relapsing from an industrial into a pastoral and agricultural community. All along the Carpathian oil district this transformation is taking place. Schodnica has been deserted in favour of Boryslaw, which in its turn will give way to Tustanowica, and its maze of derricks and engine-houses will be looked upon as interesting relics of a bygone prosperity.

Jews on the Sabbath.

Boryslaw in the daytime presents a scene of the greatest animation. Men in oil-stained suits hurry about in every direction, and the air is filled with the clank of the boring tools and the steady hum of the engines driving the machinery. The oil lies very deep in the Boryslaw field, in many places nearly a mile below the level of the ground. This fact has considerably affected the cost of the crude petroleum, as the boring expenses increase quite out of proportion to the depth of the well.

In addition to this there is always the danger in deep borings of the well becoming "nailed," the technical phrase for the great augers and drills breaking and blocking up the well.

The Austrian oil trade is protected by a considerable tariff wall against outside competition, otherwise the industry could not possibly survive against the cheap Dutch East Indian oils, or the mighty organisation of the Standard Oil Trust. This protective duty gives rise to a double standard of prices, a comparatively high price being fixed for Austro-Hungary, and a much lower one for the export trade.

On the road to Schodnica.

As it is not within my power to describe with any degree of sufficiency the technicalities of the Galician oil industry, I shall limit myself to setting forth a few of the salient features connected with its production and distribution. As already indicated, the prosperity of the Boryslaw field has been adversely affected by the depth at which operations have to be conducted, and by the diminution of the supply during the past three years, which is causing a general drift eastwards of prospectors and capital. In districts such as Schodnica, where the oil was formerly obtained, it lay comparatively near the surface, and when a productive stratum was struck, it used to spout upwards with tremendous force, inundating the large earthern reservoirs dug for its reception round the derrick. Nowadays such outbreaks are of rare occurrence, so the oil has to be brought to the surface by means of bailing, a proceeding both costly and tedious. Once out of the earth it is stored temporarily in wooden cisterns, whence it is pumped off to the tanks and railway waggons of the various companies through pipe lines, which are kept clean by little revolving brushes of steel wire being driven through them from time to time. In the refineries the oil is treated in several different ways, according to the uses for which it is intended. The more viscous kinds are used for lubricating purposes, while the finer qualities, heated to

various temperatures and purified with sulphuric acid and caustic soda, are converted into candles, wax, various kinds of paraffin, petroleum, and benzine.

The social life of Boryslaw offers many points of interest to the English visitor. Work in the various offices ceases soon after seven o'clock in the evening, and the unmarried portion of the population retire to the various "Kawiarnia" and "Piwiarnia" (coffee and beerhouses) for their supper. Boryslaw is so dirty that nobody troubles to change his dress for dinner. The chief café-restaurant — the "Restauracya Centralny"—is the locally famous "Mamcia's" (pronounced Mumshis). This name is derived from the handsome Jewess who keeps it, and signifies "Mütterchen," or Little Mother. Mamcia's is a great institution, and Mamcia herself is the chief person in Boryslaw, because her hotel is the only possible place to stay and dine at. If she will not cook you a dinner you had better go without, for the food in the other restaurants is indescribably bad. Little need be said about Mamcia's culinary efforts; the food is the best you can get, and if you take a good glass of vodka or schnapps beforehand, you can usually manage to swallow it. Her *café* consists of divisions, or classes, and prices vary in each, though the only difference seems to be in the fact that the first-class room has two windows and also rather fewer flies than the others. Polish and German are the only languages heard inside, as Mamcia, though a Jewess herself, will not allow any of the low-class Boryslaw Hebrews to come into her restaurant, and the Ruthenian workmen are too poor to afford the luxuries she provides.

The Wawél, Krakau.

For evening relaxation Boryslaw boasts of three *café chantants*, where touring Hungarian and Polish bands perform. These are wretched wooden *chalets*, with shoddy decorations inside, and the brilliant and

gaudy costumes of the musicians form a strange contrast to the coarse, oil-stained suits of the Betriebsleiter, or foremen of the wells. The life in these *cafés* has its shady side, which may be left to the imagination. There is probably about as much morality and social decency among the rank and file of the population of Boryslaw as there was in the mining camps of California in the sixties. The musical performances are, for the most part, quite valueless, and the songs, judging from the occasions on which they were sung in German, were remarkable at the best for sheer inanity, and at the worst for shameless indecency.

I fear this hasty and imperfect sketch of Galicia will give an impression of a country rich in natural beauties, but inhabited by a people whose good qualities are conspicuous by their absence. This latter is not quite the impression it is intended to convey, for in Galicia I met with kindness on every hand, and the lavish hospitality of the Poles with whom I came in contact will remain one of the pleasantest memories of an otherwise chequered experience.

Nothing made me more delighted to be westward of the Vistula again than the mode of my departure. We started from Drohobycz early on a fine August morning to catch the day express from Odessa to Vienna at Lemberg. At this latter place we decided to be in good time at the station, and as the train was due to start at two o'clock in the afternoon we presented ourselves at the booking office shortly after one. Little did we dream that it would take us the best part of an hour to get into the train. The station was filled with a surging mass of Ruthenians and Jews. We fought our way to the booking office, we twice lost our porter, the registration of our luggage was only effected by expending seven or eight kronen in gratuities to various officials, and we ended by catching the train with three minutes to spare. We then discovered that getting into the train and finding a seat were two very different things. The carriages were crowded with Jews who were flying westward from Odessa on rumours of a "pogrom," and the whole way from Lemberg to Przemysl, a journey of two hours, we had to stand upright in a crowded, shadeless corridor with a temperature of over 110° Fahrenheit. In a short time the perspiration was coursing in rivers down our faces, we were covered with soot and dirt which the locomotive was belching forth in copious quantities, and arrived at ten o'clock at night at Krakau in a state bordering on collapse. However, a day's rest in that beautiful town, coupled with some good food, revived our flagging spirits, and our last impression of Poland, as we saw the moon rise over the stately battlements of the Wawél, the embodiment of all that is greatest and best in the varied history of that country, was perhaps the pleasantest.

TRAVEL-LITERATURE

The New Far East.*

Lord Ronaldshay here collects in two volumes the impressions and studies gathered during several journeys in Manchuria, Japan, Korea, and through South-Western China. The "unchanging East" is now being in some respects so rapidly transformed that each fresh traveller, even if he covers familiar ground, as Lord Ronaldshay did, can find something new and interesting to relate. The most ambitious part of his wanderings took him up the Yangtze as far as Chungking, where he struck north-west to visit Chengtu, after which he followed the southern road across the Yangtze to Yunnan-fu, and thence the well-known route to Bhamo, traversing the country through which it is again being urged that a railway should be constructed to link up Burma with China. On the Tibetan borderlands, in which Chengtu is situated, the *Zeitgeist* evinces itself in such reforms as the regulation of beggars, who are stripped of their ancient privileges and set to carry on useful public works under police supervision. Who can say that China lags behind Europe in practical common sense, or in the utilisation of waste material? Consignments of German, British, and American machinery jostle each other in the "reformed" arsenal, but the arrival of a German foreman would probably soon remedy that state of affairs. Even more interesting is the description of "sports" held at a newly-established college at Sui-fu, where 10,000 spectators watched and applauded all day while the collegians competed in various sports and races, and this "in a country in which, but yesterday, the ideal scholar was a literary fossil," and where the craze of Englishmen for exercise was merely another proof of their madness.

It is such little sidelights as this which give interest to Lord Ronaldshay's narrative, for, like most recent travellers in China, he had little in the way of adventure to spice the difficult roads and monotonous discomfort of inns. Signs were not wanting that the "foreign barbarian" is still looked on with suspicion. In one village the people refused accommodation to the "foreign devil," while Chengtu was actually placarded with anti-foreign appeals to the people. There is, however, this marked difference between the state of affairs when I first travelled in China and the present day, that then the people were friendly on the whole and the Government was covertly, if not openly, hostile, whereas now the Government and its officials are sufficiently clear-sighted to protect foreigners, while the "China for the Chinese" propaganda is teaching the people to mistrust them. Many other features of travel, however, remain unchanged. The traveller still marvels at the wonderful banking system,

* A Wandering Student in the Far East. By the Earl of Ronaldshay. Two vols. London: W. Blackwood, 1908. 21s. net.

which enables him to cash drafts at the remotest corners of the Empire, and in the same breath curses the Chinese coinage with its infinitesimally small change in "cash," whose value has apparently no relation to any rule, and can only be correctly estimated by a Chinaman himself. The necessity of haggling for two days with one's baggage coolies, miserably certain that one is losing in valuable time what one saves in "cash"; the difficulty of enduring with equanimity the mingled blankness and curiosity of the Chinese stare—these, and many other well-remembered incidents of journeying in "Far Cathay," are apparently unaltered by the march of progress.

But Lord Ronaldshay has a more serious purpose than mere observation. Having passed over one of the routes suggested for a connecting railway line between China and Burma he plunges, rather rashly, into the well-worn controversy as to which is the best, and decides for the Bhamo-Tali-fu line. Apparently he believes in the strategic necessity for connecting Burma and China, though he does not make it clear on what grounds. But he adds nothing to the controversy beyond the asseveration that engineering science to-day is equal to the task which seemed insuperable to Colborne Baber and myself over twenty years ago, except that he shows, very lucidly, that we have no inducement to offer China in return for the concession which would be necessary, nor any grounds for hoping that the expenditure inevitable in building such a costly mountain line would be eventually productive.

Lord Ronaldshay's travels in Japan, although he did not leave the beaten track, gave him glimpses of what is practically a new world. Outwardly much may remain the same—like the "Japanese smile"—but no one can read about the industrialization of Japan without feeling that the axe is laid to the root of the social system which made her people what they were:—"Within a stone's throw of the gorgeous temples at Nikko, the prosaic sheds and chimneys of a flax-spinning mill stand boldly for New Japan, and when you enter a protest at this crude invasion of sacred ground, you are met with a shrug of the shoulders and the incontrovertible reply that the fall of water supplies a force of many hundreds of horse-power."

Beside this picture put Lord Ronaldshay's description of factory life in Japan, where trade is the careful foster-child of Government but labour goes unprotected. We read of women working at the loom fourteen hours a day for a fraction of a penny an hour; of children of ten and twelve toiling all day in factories, 48,450 out of 587,851 hands employed being under fourteen years of age; and of men earning five to six shillings a week for a twelve hours' day. What wonder that with such "cheap" labour inferior work is produced! As one reads these saddening pages it is not of the present or the past one thinks but of the future. On what reserve will Japan be able to draw when she has demoralized and devitalized her splendid peasantry by driving them into this cruel industrial machine?

Lord Ronaldshay's description of Korea, containing too much second-hand evidence and past history compiled from obviously biased sources, does not call for much comment. His conclusion seems to be that Korea will be squeezed out of being as a separate national entity by the stream of Japanese colonists and Japanese capital. A similar view was taken of Ireland at one period, but

[Reproduced by permission of Messrs. Blackwood.

A Street Scene in Tokio.

there is an inherent, indomitable force known as nationality which has a way of coming to the surface, even after long submerging.

Many excellent photographs, which really illustrate the text, give an added interest to these volumes, and a useful index-map shows the route followed by the author in China. ARCHIBALD R. COLQUHOUN.

The East in Transformation.

MR. ANGIER'S *Far East Revisited* (Witherby & Co.; 10s. 6d. net) may be recommended to all who desire trustworthy information on the present position, economic and political, in the Far East. Besides possessing personal experience of the Far East gained during earlier visits, the author, as editor of the *London and China Express*, had kept continuously in touch with events in that quarter of the globe, and was thus particularly fitted to appreciate the trend of current events, and his shrewd observation and judicious attitude add weight to his opinions. While the reader feels throughout that he is moving in an atmosphere of transition, in which forecasts of the future can only be made with reserve, he receives a general impression that a genuine movement towards progress is taking place, and that there is a good deal to justify a hopeful outlook.

Attention can be called to a few only of the many topics discussed. As regards British North Borneo we read of soil of exceptional fertility, encouraging sanguine expectations in regard to planting enterprise, though here, as in Siam, the great need is said to be a larger population. In China, Mr. Angier paid an interesting visit to Chang-sha, in Hunan, a city only recently opened to foreign enterprise. Here he found no signs of animus against the foreigner, while, like most Chinese cities at the present time, the place is described as smitten with the desire for Western knowledge. We find an impartial discussion of the opium question, and of the risks that the use of the drug may decline only to be replaced by that of morphia. Attention is also given to the possibilities of training for the public service Chinese imbued with the necessary degree of probity, and there are chapters on railways and mining. Japan is held to be now at an important parting of the ways, and the author, though hopeful of the future, ventures on no very confident forecast of what it may bring. He thinks that, with the great field available in Manchuria and the Hokkaido, undue pressure of population may long be avoided.

Perhaps the most striking evidence of the changes in progress in the East, and the resulting incongruities, is supplied by the account of present-day Siam, where "the Queen steps into a powerful motor-car of the most recent design, lighted thereto by a woman with a candle. . . . . The clang of the steam hammer at some engineering works is in contrast with the Wat, with its silent yellow-robed priests, next door. The fishing dug-out, the Chinese junk, and the up-river padi boat are mixed up with innumerable launches and motor boats; whilst the Siamese Navy . . . . is served by rua changs (native craft)." The book is excellently illustrated by reproductions of photographs, and there is an appreciative preface by Sir Robert Hart.

EDWARD HEAWOOD.

From Damascus to Palmyra.

An attractive addition to the handsome "painted and described" series is *From Damascus to Palmyra* (Messrs. A. & C. Black; 20s. net) in which the Rev. Dr. John Kelman discourses very pleasantly, with an abundant supply of good stories, on the country and peoples encountered by the traveller between Beirut and the once magnificent city of Palmyra, now irretrievably in ruins, but still affording evidence of its former grandeur and beauty. The illustrations include seventy full-page reproductions in colours of paintings by Miss Margaret Thomas, forming a worthy accompaniment to the text. Like all recent travellers in the East, Dr. Kelman was greatly impressed with the commingling of East and West, often with incongruous results and a baneful effect on the character of the people. "Ah!" replied one of the older men in Beirut whom Dr. Kelman asked why so many of the younger generation had exchanged their graceful native costume for unbecoming gaudy European clothes; "ah! do you know that the Arabs call the raven the *crooked walker?* The raven once hopped gracefully like a bird. One day it saw a gazelle, and began at once to try to walk like the gazelle. Now it walks as you see—neither like one nor the other. And that is what these are—crooked walkers."

Fascinated by the vast solitudes and infinite variety of the desert spaces crossed on the way to Palmyra—so different from the endless expanse of yellow sand which is the picture commonly summoned to the mind of those at home by the term "desert"—Dr. Kelman none the less found that travelling in such country is not without its dangers, to the poor pilgrim if not to the well-equipped tourist caravan. "An unnoticed crack in a water-skin, or the jar spilt by a stumbling beast, is all that is needed to bring some poor mortal to his end. We passed one band of pilgrims returning, many of them on foot, from Mecca, and one of them, an old man, reached the well of Ain el Beda with his tongue hanging from his mouth, cracked and bleeding. While we were resting by another well a man staggered in from the plain, hardly able to walk, crying 'Water, water, I am dead!' When, on the return journey, we again visited Ain el Beda, a crowd of the Mecca pilgrims had camped beside the well in a confusion of tents new and old, among which camels knelt in supercilious nonchalance. But at the well-mouth tied skins were lying, filled to their utmost capacity with the precious thing, and tangled skeins of rope were everywhere about, while a dense crowd of swarthy men cursed and fought like wild beasts for the next skinful, though by that time they were drawing little else than liquid mud."

Comparatively few tourists make the journey to Palmyra. In 1906 five parties visited it, and the year before only two. Dr. Kelman devotes several chapters to the city past and present, but we must content ourselves with quoting his first impressions: "From the height at which we stood the buildings were diminished to miniature, and the colonnade and temples were like delicate lacework torn, or the shattered ivory carving of some Indian artist's manufacture. Every detail was in proportion, and the general effect was dainty beyond description. But the magic of that evening lay mainly in the colour of the city as it caught the after glow . . . . As we descended slowly

in the evening light, the shining city seemed to rise and expand about us, till at last, when we had entered the colonnade the great size of the pillars astonished us as they towered above the tents and dwarfed them. Excavations, whose remains are still visible in trenches dug about the bases of some columns, show that in former times the height must have been about a third greater than it now is. Yet even now, the parts of the columns that rise clear above the ground measure on an average some fifty-five feet. It must have been a magnificent place indeed, when the living city stayed the drift of sand that has been encroaching through so many centuries of death."

Arab Devotion to Flowers.

In *Tunis, Kairouan, and Carthage* (William Heinemann ; 16s. net) Mr. Graham Petrie, R.I., writes pleasantly about his visit to those places and fills out his pages with numerous "fragments" of their history. There is plenty of opportunity for drawing striking contrasts between the conditions prevailing in the days of Phœnician and Roman rule, later in the days of Arab and Turkish dominion, and now under the influence of modern French civilization. Mr. Petrie sees everything with an artist's eye, and has not only recorded his impressions in writing, but depicted them in a series of forty-eight paintings, reproduced in colours, of which the warm glow is doubly attractive in these northern wintry days. Mr. Petrie calls attention to an interesting trait of the Arab character :—" The Arabs, who have a passion for scents, have a curious fashion of detaching strong-smelling flowers, such as jasamine and orange blossom, from their natural stalks, and spearing them with grass of a special kind, thin and stiff as wire. A score of such blossoms are then bound together in a compact mass, the size of a carnation. In this way they secure a maximum of scent in a small compass, and the bouquet is alternatively held to the nose or thrust beneath the turban, so that it dangles over the cheek. The Arab is devoted to flowers. The humblest little courtyard will have its meanness redeemed by a few pots of geraniums and roses, arranged under the protecting shade of the traditional and ever-present fig-tree, and even where water is scarce and very precious, these will not be deprived of their nightly drink. . . . I remember visiting, without pre-arrangement, the modest little house of a guide who was contentedly serving me for the pittance of a franc and a half the day, and finding his little sitting-room quite gay with cut roses."

Mountaineering in Lapland.

After an extensive experience of climbing in the Alps, Mrs. Aubrey Le Blond turned her attention to Norway, and devoted several summers to mountaineering within the Arctic Circle. In *Mountaineering in the Land of the Midnight Sun* (T. Fisher Unwin ; 10s. 6d. net) she tells the story of her ascents of a number of peaks, many of them believed not to have been trodden before. If there is little that is exciting in her experiences, this is all the more to Mrs. Le Blond's credit as a mountaineer and a veracious chronicler. As she says in her preface, " adventures are seldom to the credit of a mountaineering party,

of whom the proudest boast should be that no unnecessary risks were taken." Mrs. Le Blond does not think that her northern playground is likely to become overrun. The long journey, the absence of hotels and guides, and the difficulties of the language, where none speak English, all serve to protect it from invasion by tourists. "Yet the climber who is undeterred by these obstacles can still find innumerable virgin peaks and mighty cataracts of ice awaiting the foot of the explorer." The country has the advantage of being a good ground for beginners. "If those who wish to scramble unaided and at but a small cost would turn their attention to the north of Norway they would be able to carry on their pastime in comparative safety, if they observe the following rules, and are sufficiently observant in reading the warnings written on the mountains themselves :—Never go alone on an expedition ; never be unroped on a snow-covered glacier ; never go in gulleys where dirty marks on the snow indicate that stones are in the habit of falling ; never climb immediately above each other where the rock is loose." The volume is profusely illustrated with excellent reproductions of photographs.

An Adventure in Corsica.

When Mr. J. M. Chapman was asked why he did not publish his notes on Corsica he replied that he had in his pocket a list of eleven hundred and thirty books which had already been written about the island. The readers of *Corsica : An Island of Rest* (Edward Stanford ; 7s. 6d. net) will congratulate themselves that after much persuasion he consented to add another to the number. Into a charming description of personal experiences he has woven some of the most romantic stories of a country whose history is full of romance. The vendetta still holds sway over the lives of the people, and is condemned by Mr. Chapman in unsparing terms ; but he will not allow that Corsica is a dangerous place for the traveller. He has been out alone at all times, and in all parts of the island, and only on one occasion had he anything in the nature of an adventure. That occasion was during the big fair in the Niolo. "The hour of midnight boomed from the church tower, and I left the fanciful scene and began to retrace my steps, rather wishing that even the roughest trap were going in my direction. As I passed the gates of the grove three dark figures rose from the ditch, stared at me and disappeared. I didn't like the look of them, but I had got through the village and reached the most lonely part of the road before I heard the ugly sound of footsteps, evidently tramping after me. A rather creepy feeling came over me I admit, for it seemed possible there might be a few rough customers about at this time. I hastened my walk, and the footsteps behind broke into a trot. I stopped, and turning round, shouted, 'Who comes there ?' The footsteps stopped also, and the only reply was a pistol shot, followed by a sudden rush. For once I was glad I had a pistol. Taking it out quickly I fired two shots into the air and rushed up the bank, at the top of which I knew there was a cross footpath to Calacuccia. Three pistol shots came rapidly in reply, but my friends or foes had missed me, and with a shout they rushed down the road, leaving me behind. I waited a few minutes and then groped my way home by the footpath without meeting a soul. They may

not have meant any harm, at any rate they did not do any, and that is the only time I ever used a pistol in Corsica." There are about thirty small illustrations and a good map.

The Alpine Ski Club.

THE Alpine Ski Club, which has Sir Martin Conway as its president and Mr. Arnold Lunn, of Balliol College, Oxford, as honorary secretary and editor, has published its first *Annual* (Horace Marshall & Son ; 2s.), the aim of which is to provide a yearly record of pioneer ski ascents, whether performed by members of the Club or others. The *Annual* is attractively got up in small magazine form, and contains a dozen articles on ski-ing by such authorities as M. Roget, Mr. W. Rickmer Rickmers, Mr. Walter Laxden, and Mr. Lunn, besides reviews of the mountaineering books of the year and a list of the officers, committee, and rules of the Club. The purposes of the Club, to which the annual subscription is only half-a-guinea, are thus explained by Mr. Lunn : " The A.S.C. does not aim at competing with existing clubs, many of whose leading members we hope to enrol. We work on perhaps narrower, but not conflicting, lines. We do not touch racing, ski-jumping, or any form of record breaking, however venial. We offer no badges, we frame no tests. To ensure that every member of the Club shall be fit for first-class ski-expeditions, candidates for election are asked for a list of their climbs, but once elected no attempt is made to discriminate between members of the Club. Our aim is to unite those bound by a common love for the mountains, joined to a desire to explore them in winter . . . . . We hope to facilitate mountaineering on ski by fitting out club huts and publishing ski-ing guides."

The Levantine Riviera

A NEW volume in the well-known series of Reynolds-Ball's Guides deals with the Levantine Riviera, which comprises the north-west coast of Italy between Genoa and Leghorn. The volume (2s. 6d. net), describes the coast between Genoa and Spezia, or that portion of the Levantine Riviera where the mountains are contiguous to the sea. The joint authors, Dr. W. T. Beeby and Mr. E. A. Reynolds-Ball, have presented in an interesting and readable manner a great deal of information likely to be useful to visitors to this coast, which is described as suited to " all those requiring a mild tonic treatment, with a combination of mountain and sea air, the proximity of pine trees, a temperate climate, and non-irritating atmosphere." Each of the resorts between Genoa and Spezia inclusive is dealt with separately, and there are chapters on the natural history and geology of the region, on Ligurian painting and architecture, and on the industries and folk-lore of the countryside. Appendices contain particulars of the principal routes from London and a bibliography, and in a pocket at the end is a map of northern Italy on a scale of about twenty-four miles to the inch. A number of photographic illustrations offer tempting glimpses of the natural beauties of the coast.

THE EXPLORING WORLD

The Sleeping Sickness Commission.

Writing from Uganda in the middle of November, Captain A. E. Hamerton, R.A.M.C., D.S.O., informs us that the Sleeping Sickness Commission organised by the Royal Society on behalf of the Colonial Office has arrived in the Protectorate and taken up its quarters on a hilltop overlooking the Victoria Nyanza, in view of a magnificent panorama of forest and jungle-covered hills. The Commission is stationed fifty miles north of Entebbe, the headquarters of the Uganda Administration, and is quite in the wilds. A detail mentioned by Captain Hamerton is that bird-life is scarce except along the lake shore. The Commission is in charge of Sir David Bruce, who is accompanied by Lady Bruce, and besides Captain Hamerton the staff includes Captain Bateman. No certain cure for the sleeping sickness has yet been discovered, and the work of the Commission is of the greatest importance, though not without its dangers, as was shown between two and three years ago by the death of Lieutenant Forbes Tulloch from the disease, contracted while he was at work in Uganda as a member of a former Commission. In Uganda alone the Governor, Sir H. Hesketh Bell, reports that out of some three hundred thousand people formerly inhabiting the shores of the Victoria Nyanza and the islands in the lake, more than two-thirds have succumbed to the sleeping sickness. In the Congo State the ravages of the disease have also been enormous, and the rapid spread of the sickness threatens to involve the greater part of tropical Africa. Happily every Administration is now alive to the danger, and is adopting preventive measures. Only a few days ago we heard from Nyasaland in a private letter of the strenuous efforts of the Government to defend that Protectorate from the approaching disease. To revert to Uganda, it is a striking sign of the times that Captain Hamerton sends a local picture postcard showing a view of the lake shores, with an inset portrait in one corner of a boy who has fallen a victim to the sleeping sickness. The view is headed: "Results of Sleeping Sickness. Uganda. Once Fruitful Gardens, now Wilderness."

The Exploration of Arabia.

Many even of those who agree with Sir Clements Markham that the day is still far distant when the explorer will have no more work to do probably heard with surprise from Mr. D. G. Hogarth, at the opening meeting of the Royal Geographical Society's lecture session last November, that the unexplored desert regions of Southern Arabia embrace an area of over half a million square miles, which no European has even so much as entered. Mr. Hogarth mentioned that there was a project afoot for a certain bold explorer with unique experience of the Aden hinterland to attempt an expedition in and about the Great Desert, and the audience would have taken a new interest in the remarks which Mr. G. W. Bury contributed to the subsequent discussion had they known that he was the explorer in question. A few weeks ago Mr. Bury

left England for Arabia, supported by a substantial grant from the Royal Geographical Society, and it is no longer necessary to preserve any secrecy about his plans. He is accompanied by Mr. P. E. L. Gethin, who holds the Society's diploma in surveying, and proposes to strike northwards from some point east of Aden into the very heart of the peninsula. The route must necessarily be determined largely by circumstances. Everything depends on the physical possibilities of the country, and on the ability of the explorers to avoid hostilities with the Arabs. If the reputed pilgrim route across the desert from Oman to Mecca exists and can be reached, the expedition may turn eastwards, and make for Muskat, or it may be found better to continue northwards to the Persian Gulf, or strike westwards to the Red Sea, or even return south to the Hadramant. It is an adventurous and perilous undertaking, but if successful should yield most interesting results, especially in the fields of geography and archæology.

Primitive Queensland Islanders.

Who would suppose that on an island close to the coast of Queensland there are still to be found natives who have never had any dealings with white men? Yet such is in fact the case according to Mr. R. B. Howard, the Chief Protector of Aborigines in Queensland. Mr. Howard has been making a tour of the islands off the northern shores of the State, and in the course of his voyage came to Mornington Island, one of the Wellesley group in the Gulf of Carpentaria. Previous attempts to get into touch with the natives inhabiting the island have met with little success, but Mr. Howard managed to assure them of his friendly intentions, and though he found them very timid he thinks they would soon become friendly. "They are still," the *Queenslander* reports him to have said, "in their primitive state, and did not know the use of tobacco, would not eat bread or meat, or even sugar, although they readily tasted anything given to them. It is evident that so far these people have not come into contact with the white man. They are very healthy, no sign whatever of any disease, and although emaciated in appearance, are strong and agile. . . . . Their food consists chiefly of bulgaroo nuts, the fruit of the pandanus tree, fish, and a species of wild yam." These are now the only aborigines in Queensland, so far as Mr. Howard knows, who have not in some measure come into contact with white men.

The Siege of the South Pole.

Accounts now to hand from New Zealand show that the British Antarctic expedition relief ship *Nimrod*, under Lieut. F. P. Evans, R.N.R., had a very hearty send-off when she left Lyttelton on December 1st for Ross Island, at the western end of Ross's Great Ice Barrier, from which Mr. Shackleton has been delivering his attack on the South Pole. Every effort consistent with the safety of the expedition will be made to return before the Antarctic winter sets in, but in case the *Nimrod* should unavoidably be detained in the ice, she has on board ample provisions and stores to last the combined expedition —nearly forty men in all—till next year. If all goes well and Mr. Shackleton returns in March or April, only one expedition will be left in the Far South—the expedition newly arrived in the Antarctic regions under Dr. Jean Charcot. Dr. Charcot's field is the region south of the Pacific

stretching from Graham Land, south of Cape Horn, round to King Edward VII. Land. His last expedition, which wintered off Graham Land, did comparatively little in the way of exploration, though valuable scientific observations were secured. The present venture, liberally supported by the French Government, is a much more elaborate affair. A new ship, the *Pourquoi Pas*, has been built for the expedition, and with the aid of special motor sledges, carefully tested in the Alps under conditions as near akin as possible to those likely to be encountered, Dr. Charcot hopes to penetrate at least a long way in the direction of the South Pole. The delays attending the departure of the expedition from France—even when the *Pourquoi Pas* did at last get off, she returned because of bad weather in the Bay of Biscay—have not created a very good impression, but Dr. Charcot and his companions have now a good opportunity to show that in the Antarctic French explorers can be no less enterprising and successful than in other parts of the world.

[Christchurch Weekly Press. Phot.

The "Nimrod" in Lyttelton Harbour.

The Exploration of the Sea.

Captain Roald Amundsen, who in 1906 completed the first voyage through the North-West Passage, and who has just been lecturing before the Royal Geographical Society on his plans

for a drift voyage across the North Polar ocean, places in the forefront of his programme the study of oceanographical problems. It is calculated that the oceans comprise nearly three-fourths of the entire earth's surface. The problems they present are of immense importance, yet it is only in comparatively recent years that oceanographical science has begun to receive serious attention. Very few people realise how great has been the development of the science. The results that can be obtained with the newest apparatus are nothing short of marvellous. Samples can be taken from the bottom of the sea in such a way that not only the surface layer of mud or ooze can be examined, but lower layers to a depth of six or seven feet. Another ingenious apparatus permits the measurement of the strength of the light that penetrates to various ocean depths, both under ice and in the open sea. Thermometers have been devised by which the temperature of the sea at any given depth can be determined within one-hundredth of a degree Centigrade, and it is possible to secure a sample of the water at any depth, and to ascertain its salinity with no greater margin of error than a thousandth part of one per cent.—a degree of accuracy necessary for the study of certain problems.

Collapsible Boats for Explorers.

We have received for trial from the Accordion Boat Company (Garratt Lane, Earlsfield, S.W.) one of their patent folding canvas boats, which are designed to meet the need of a strong, serviceable boat which can be quickly collapsed and easily carried. We have submitted the specimen boat to Commander H. Lynes, R.N., Portsmouth, who reports :—

"I have given the boat a good trial, and find it an excellent thing ; light, easily rigged up, and wonderfully stable ; easily managed by anyone who is used to boats. The sample sent holds three people comfortably. It draws only about three or four inches of water with three people in it, and has lots of freeboard. As regards repairs, I agree with the firm that they are an easy matter. No part of the canvas near the water has a hole in it (to bolt it on to any framework or anything), which is quite the right thing. I think myself that if I were going to take it out on some expedition where rough usage would be certain I should like to have the metal clips for the gunwhale strip rather stouter, and accept another two or three pounds on the weight ; and I should also have the sockets on the stem and stern—in which the ends of the gunwhale strips ship—secured to one another by through bolts. Then I think if I were going where there are likely to be sharp rocks, rapid rivers, and so on, I should have a wooden keel about three inches deep added—which could easily be constructed so as to slip either in or out of place at will—in order to keep the canvas off jagged rocks under water ; and I should also have fenders as well, which could be quite independent of the design of the boat. These are only suggestions. I feel that I can thoroughly recommend the boat as it is."

After further trial on a day on which there was more wind and tide, Commander Lynes reported that the boat behaved very well, and that some other naval officers who witnessed the trial agreed with him. He points out, however, that the sockets of the rowlocks are not very conveniently situated. They ought to be a little to the front of the rower's seat, not in line with it.

TOURIST·TRAVEL

The Vogue of Pleasure Cruises.

One of the most striking developments of twentieth century travel is the co-operative or public yachting cruise. The vogue of yachting cruises for health or pleasure increases annually, and even the great steamship companies see the necessity of recognising this popular demand and encouraging a form of passenger traffic which they were at first inclined to ignore. The programme of cruises in the Mediterranean for next spring is an extensive one, the vessels set aside for this service including (1) the *Vectis* (P. & O.), starting from Marseilles on February 18th, March 20th, April 22nd, and May 21st; (2) the *Ormuz* (Orient-Royal Mail), March 12th and April 8th; (3) the *Grosser Kurfurst* (North German Lloyd), February 25th; and (4) the *Thalia* (Austrian Lloyd), February 3rd, 17th, March 2nd, April 1st. Then the Co-operative Cruising Co. (Dr. Lunn), who have recently replaced the ill-fated *Argonaut* with the *Dunottar Castle*, chartered from the Union Castle Steamship Co., will inaugurate their series of cruises on February 18th with a trial trip to Lisbon, Gibraltar, Algiers, and Marseilles. This will be followed by cruises to Egypt, Palestine, Athens, Constantinople, and the Isles of Greece.

Khartum as a Winter Resort.

Khartum may now be regarded as the *ultima thule* of fashionable tourist colonization in Egypt, and this season the renascent capital of the Sudan promises to be a popular goal of travel with the ordinary pleasure-seeker and sun-worshipper. In spite of the high prices of the hotels, and the distance from Cairo, a month's holiday here need not cost more (including the cost of the journey from London) than a stay of the same duration in the City of the Caliphs, provided the new route *via* Suakin be taken. There is now a weekly service by the Red Sea service of the Khedival Mail Line. It is not generally known that Khartum can actually be reached in shorter time *via* Suakin than by the ordinary Nile route. Leaving Cairo by rail on Wednesday morning, passengers embark on the Khedival liners at Suez about 5 o'clock, and reach Port Sudan (Suakin) early on Saturday morning, in time to catch the mail train from Cairo at Atbara, reaching Khartum on Sunday morning; so that by this service Khartum is brought within a week of London. The fares from Cairo are moderate, namely, £13 10s. first class single, and £25 15s. return. The sleeping car supplement from Port Sudan to Khartum is £1 extra only. In their desire to attract visitors to the Sudan the Government are showing themselves unusually enterprising, and the Nile communications to Cairo have been much improved this season. For instance, the railway administration have put on Pullman cars in the through trains from Khartum to Wady Halfa.

Golf at St. Raphael.

For many years St. Raphael, with its English quarter among the Valescure pine-woods, has been the Cinderella resort of the French Riviera. Recently, however, the place has shown signs of reviving popularity. There is very tolerable golf in lovely surroundings,

and though the greens may not be so well kept as at the fashionable Nice and Cannes Clubs, yet the player can always get a game. At La Napoule on the other hand, so crowded are the links on most afternoons that the scene at the first tee suggests a Hyde Park demonstration! The social character of Valescure, it may be observed, has altered considerably since the time when it prided itself on being in the main a literary and artistic centre, with Mrs. Humphry Ward and the late Mrs. Oliphant as the twin *genii loci*.

The Lugano Golf Links.

Considering that golf is supposed to follow the flag, and that North Italy, especially its Riviera and Italian Lakeland, is so largely frequented by English visitors, it is strange that golf links are so scarce. Indeed, there are only three, San Remo, Varese, and Cadenabbia. Lugano, however, has become alive to the necessity of providing this indispensable attraction for her English guests, and a golf club has recently been started with Mr. Hamilton, H.B.M. Vice-Consul, as president. The laying out of the links has been entrusted to Walter Hill, the Cadenabbia professional. A large new hotel, Hotel Lloyd, has recently been built, which will accommodate over one hundred guests. A special feature will be a large first-class restaurant.

Rundreise Tickets.

There is no doubt a considerable economy in the use of these official circular tour tickets — from 25 to 33 per cent.; and perhaps it is the ignorance of the ordinary tourist which has militated against their more general use. There are, however, a few drawbacks, as they must be obtained in advance, the holder is not entitled to any free luggage, and there are difficulties about through registration of luggage belonging to Rundreise ticket holders. Travellers should note that these tickets should not now be used on German railways, as they are actually dearer than ordinary return tickets.

EUSTACE REYNOLDS-BALL.

Baggage Insurance.

We live in an age of progress, and one of the most recent signs is the scheme of "Baggage Insurance" introduced by The Travellers' Baggage Insurance Association. We have received particulars of the scheme from Messrs. Pitt & Scott, Ltd., of 25, Cannon Street, London, E.C., and, having submitted it to an independent authority experienced in insurance matters, have no hesitation in saying that for travellers in pursuit of pleasure or exploration it supplies a real need. The Association are prepared to issue policies to reimburse all loss arising from fire, theft, pilferage, and sea-water damage to personal luggage, providing the same is insured with them for a sum equal to its full value. The premium charged for the wide range of risks covered is low, and the period of time for which the insurance can be effected is from a minimum of two weeks, so that all requirements can be met. The conditions governing the insurance, a matter of great importance when a claim arises, are quite reasonable, and not unduly stringent. Insurance for the amount of £25 for two weeks can be obtained for a premium of 2s. and higher sums can be covered at proportionate rates. For longer periods than two months the rates are considerably reduced. All travellers know the many risks to which personal luggage is subject, so that we have no doubt the scheme will receive the support its merits deserve.

Motoring to the South Pole.

The time draws near when we should be receiving news of Mr. E. H. Shackleton's Antarctic expedition which, whatever the measure of success that attends it, will be memorable in the annals of exploration as being the first expedition on which an attempt has been made to employ mechanical traction in the South Polar regions. If all has gone well with the expedition Mr. Shackleton has been journeying over the great ice barrier which extends to the south of the Ross Sea, and which, so far as it is known at present, forms, away from the mountainous coast of South Victoria Land, an almost level plain, such deviations as there are from an absolutely flat surface being so slight that the motor vehicle which is being employed is reckoned to have in its nine-inch clearance an ample margin for negotiating any irregularities that may be encountered.

Mr. Shackleton's Car.

Three days before his motor vehicle was shipped from England I had a long talk with Mr. Shackleton, who kindly allowed me to examine it in every detail. Though sundry photographs of the car have been published, no satisfactorily detailed description of it has been written, and I therefore propose to touch on some of the more interesting features. Perhaps the first thing, apart from the mere lines of the vehicle, to catch the eye of the spectator, is that all the levers and other metal handles are covered in chamois leather, to prevent those who have to use them from getting their hands "burnt"; while not the least of the ingenious furnishings is a sort of giant sheet made of gabardine, which weighs only 4 lbs., but which covers the entire car from the runners on the front wheels to the hindmost part. This was to be employed whenever a halt was made for camping, so that there should be no chance of mishap from blizzards. As the machine is being employed in the Antarctic summer-time the range of temperature to be expected should seldom fall below -10° Fahrenheit, and should generally be from 10 to 15° above zero. Nevertheless, a celluloid wind-screen is employed, because a glass one might on occasion prove too brittle.

Special Features.

Coming to the construction of the car itself, one finds that the four vertical cylinders that are placed beneath the bonnet in the ordinary way have phlanges integrally cast round them, because, though we cannot make a success of air-cooled engines in Britain, the Antarctic regions at least necessitate the employment of that system as distinguished from the familiar water-cooling method. The entire skeleton of the machine is built on somewhat more substantial lines than an ordinary touring car, and as very special steels have been employed it will be gathered that the actual strength of the machine is appreciably greater than one might imagine from a mere mental estimate of the quantity of material embodied in its construction. Two systems of ignition are employed, because the

expedition is in a position to recharge the accumulators from its base at the winter quarters, so that the magneto ignition system is supplemented by a high tension coil and battery system.

Heating Arrangements.

One of the sources of privation and difficulty during the exploring journeys carried out from the *Discovery's* winter quarters was the need of water. If the hopes entertained of Mr. Shackleton's motor-car-cum-sledge have been realised, it should have proved invaluable in this connection, for the long, large pipe that carries the hot exhaust gases away from the motor not only passes round the carburetter and thence to a foot-warmer that forms the ordinary foot-board of the car, but continues through a metal trough placed at the side of the machine and specially designed to be fed with snow, which is thus melted. Though the motor is of only 15 horse-power the car has a tremendous advantage in the matter of utility over any aircraft that could be employed for polar exploration in that the back carries a load of 16 cwt., in addition to what is dragged by the draw-bar to which are attached narrow sledges drawn in the tracks of the car. It was Mr. Shackleton's expectation to do a great deal of travelling on pneumatic tyres,but where conditions were not favourable he would have the wheels wood-shod, the front ones resting on a pair of giant ski having a six-inch tread, as have the wheels themselves.

Estimates of Success.

The estimate was that the three men forming the motoring party would eat a total of only 42 lbs. of food a week, and that under favourable circumstances and without dragging sledges the automobile would travel at the rate of six miles an hour, or say one hundred and fifty miles every twenty-four hours. This means that the machine could be run independent of the pharaphernalia of the rest of the expedition, and as a self-sufficing unit including three men, for a period of forty days, whereas the winter quarters of the expedition being, say, eight hundred and fifty miles from the South Pole, the reaching of the desired objective would only occupy six days of continuous travelling at a hundred and fifty miles a day. This would appear to make the reaching of the Pole an easy matter; but in actual experience there is generally something to upset calculations of this sort. A year ago the *Nimrod* brought back word from the winter quarters of the landing party that though the engines worked admirably when the motor was put together, the land and ice conditions in the neighbourhood were unsuitable for motor travelling. It will be interesting to learn whether Mr. Shackleton has been able to get the motor out on to the open surface of the barrier, and if so whether his hopes as to the usefulness of the car as an aid to Antarctic exploration have been realised.

H. Massac Buist.

AËRIAL·FLIGHT

Flight in the Arctic.

Lecturing to the members of the Liverpool Geographical Society, Mr. Sandon Perkins announced that next year he expects to lead an aeroplane expedition to the North Pole, which he believes will soon be reached by that means. I understand that the apparatus he has in mind is one that has been much in evidence on paper—to judge from the number of times it has been brought to my notice—but concerning which I have not come across any trace of its having materialised or done aught in practice.

Natural Difficulties.

So far I have only heard of schemes for employing aerial vessels in connection with Arctic expeditions. Reasoning by what has been publicly demonstrated possible as well by lighter than air as by heavier than air craft, the rugged character of much of the North Polar ice, presents no inconsiderable obstacle to the successful employment of aeroplanes. At present woods and villages are found difficult to fly over, while even small hills have not been attempted. The difficulty in this connection is in part due to the varying conditions of wind encountered in the neighbourhood of relatively low obstructions, so that when aeroplanes shall be sufficiently reliable to justify their pilot flying at an altitude of a thousand feet the atmospheric conditions should be found not to vary so appreciably. At present, however, the most practical and successful type of machine, namely, the Wright aeroplane, has never flown more than 370 feet up at the utmost when competing for the Highest Flight Prize; and the Wright brothers, it may be pointed out, seeing how much the skill of the pilot counts for, have now been practising gliding in the air for very nearly eight years.

The Power Problem.

Another outstanding obstacle to success is that before you can undertake serious flights in the Arctic you must be sure of the possession of a motor that can be guaranteed to work continuously for at least twelve hours at a spell under conditions at least twice as severe as obtain in Europe; whereas no motor has yet been produced that has run continually in actual service on an aeroplane for more than two and a half hours; and that motor could not be guaranteed to perform even for ten minutes at a time whenever called on. Mr. Henry Farman had to suspend entirely his experiments for a while pending his finding a motor more reliable than those he had been employing. The practical fashion in which they are setting to work to solve the problem in Europe is to abandon temporarily the quest of the very light motor and rather to encourage very substantial designs as being the best way of insuring reliability. But for the purposes of an Arctic expedition one cannot afford to concede an extra pound of weight for a motor.

Essential Requirements.

Let us suppose, for argument's sake, that a twelvemonth hence it will be

possible to get an absolutely reliable motor that will develop one horse-power for every two pounds of weight (which I believe to be absolutely impossible for a very much longer period to come), and that the imaginary motor will work satisfactorily under Arctic conditions. What do we then find? At least two men must be carried on the aeroplane, and it were folly not to take a minimum of three. A very ample supply of provisions must be carried, as well as large quantities of fuel and lubrication replenishments. These conditions would apply even if the scheme were that the aeroplane should establish its own replenishment depots by making many to and fro voyages before finally quitting the base of the expedition for a dash for the pole.

Effect of Bulk on Speed.

Apart from the weight-carrying problem, which at the minimum would be at least three times in excess of the best practical achievement to date, there is the bulk which would be presented by passengers clad in expedition garments, and by the stores. This matter of bulk is a very important one, resulting in absorption of power, as manifested in reduction of speed, which in turn means that the slower the speed the less the weight that can be carried by planes of any given dimensions. Broadly speaking, no aeroplane fitted with a motor and carrying one person without any other load has been able to travel at less than thirty-two miles an hour. At slower speeds they are bound to come gradually to earth. In the monoplane type, where only one cutting edge is presented to the wind, the greatest speed yet achieved has been between fifty-five and fifty-six miles an hour; whereas in a bi-plane, that presents two superposed cutting edges to the wind, I find no record of an officially observed performance at a rate of travel exceeding forty-five to forty-six miles an hour. This rate of speed reduction will alone indicate the difficulties to be surmounted before a heavier than air machine can be produced which will fulfil the most obvious essentials of work in connection with polar expeditions.

Advantages of Dirigible Balloons.

As to the employment of dirigible balloons for the purposes of exploration in regions where the constancy of the wind can be relied on for periods of a week or a fortnight together, there are quite a number of reasons why rigid structures of the Zeppelin sort might be practicable. In the first place in calm weather the temporary stopping of one or more of the motors employed would merely result in the air-craft drifting for a while, whereas that would bring an aeroplane to earth very probably at a spot whence it would be quite impossible to launch the craft again in free flight. With a dirigible it is easier and safer to rise to very great heights, thereby commanding a greater range of vision, while it should be possible to travel anything from a thousand to fifteen hundred miles at a spell a twelvemonth hence. Precisely what would be the effect of the Arctic temperature on the gas enveloped cannot be ascertained without further investigation.

H. Massac Buist.

TRAVEL · & EXPLORATION
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A Hunting Trip in British Columbia.

By LORD HINDLIP.

On July 26th, 1907, Lady Hindlip and I found ourselves on the Canadian Pacific mail steamer the *Empress of Ireland*, bound for Vancouver and the north. A record run across to Rimouski and Quebec, and four nights and four days in the Overseas Express, took us into Vancouver on the evening of August 5th, and on the 10th we sailed for Wrangel, Alaska, in the *Princess May*.

In June, July, and early August, the voyage from Vancouver northwards through the island-bound seas bordering the coast is certain to be attractive. The weather is then likely to be fine, which is more than can be anticipated at other times of the year. These waters resemble, I believe, on a larger scale the Norwegian fjords ; the scenery is magnificent, and with the exception of one or two sounds open to the Pacific the sea is absolutely land-locked and smooth. Passing Prince Rupert, the future terminus of the Grand Trunk Pacific Railway, a most picturesque place, boasting at that time a post office, a bank, a chemist's shop (in a tent), an excellent store, a few clean inviting-looking houses, and a newspaper, we arrived at Wrangel, in American territory, on August 13th. Mr. Bronson, the United States Consul, and his wife, were more than kind, and Customs worries were reduced to a minimum. To our surprise, especially after a short experience of Canadian hotels, the hotel kept by a hospitable American was, considering the place, excellent — new, clean as a new pin, and everyone as obliging as possible.

Here we found bad news. The stern-wheel steamer the *Hazelton*, chartered by the Hudson Bay Company, had bumped the rocks badly coming down the Stikine River, and was comfortably lying in the mud

being repaired, while as her stores were running short the skipper wished to wait for the arrival of a steamer to replenish them. This was too much, and a deputation of would-be hungry hunters waited on the skipper, and after a palaver persuaded him not to wait. Then, by some most mysterious chance illness or fell intent of man, the cow—Wrangel's only cow—conveniently died ; a couple of small coast deer appeared from some fisherman's boat, and our commissariat was itself again. Oh that cow, that aged cow ! Its carcase was hung up astern, where half was washed by the spray from the wheel, and half was blackened by cinders from the smoke stack. On arriving at Telegraph Creek we devoutly hoped for no more cow, but alas, a storekeeper with an eye to business purchased what had not been cooked, and the diminished carcase was dragged through the sand to the restaurant to be again our fare. Fortunately I saw the performance and partook not of beef at Telegraph Creek.

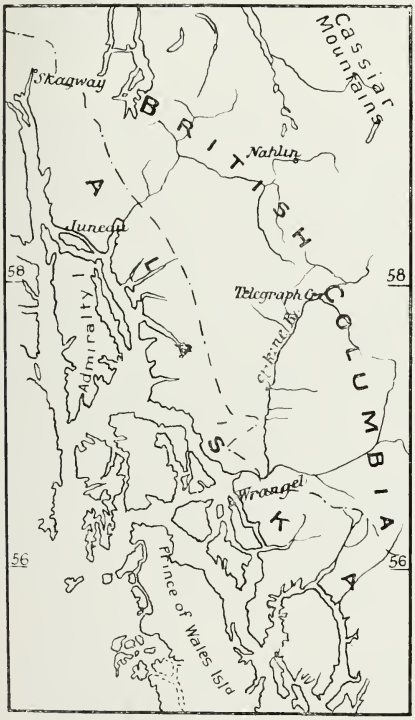
The journey up the river to that point occupied three days. Our old boat, creaking and straining, with a bottom like a sieve if rumour could be believed, puffed and panted against the current of the Stikine, while on board were fifty souls bestowed in twelve cabins. Ladies, hunters, guides, crew, prospectors and Indians formed a motley collection. Fortunately the weather was fine, the scenery magnificent, and the spirits of all were running high with the expectation of better things to come. An abler pen than mine is needed to describe that journey up the river. Glaciers, one said to be six or eight miles broad and fifty long ; mountains clothed with dense forests ; snow-clad peaks and rugged cliffs, the home of the goat, towering aloft in silent and impressive grandeur ; sand bars where bears were seen on more than one occasion ; rapids, through some of which the old boat had to be hauled by hawser and windlass ; creeks full of salmon—all made for the enjoyment of an uncomfortable journey never to be forgotten or regretted.

Telegraph Creek, a quaint little place perched up on the bank over the river on the overland telegraph trail from Ashcroft to Dawson City, was made up of the Hudson Bay Store, a saloon, police court and judge's office, a store owned by our host, Mr. Hyland, a few other houses, and a collection of the most independent, dirty, and poisonous Siwashes* it has ever been my misfortune to encounter. Here we met my guide, George Adsit, a naturalised British subject from Wisconsin, an old cowboy, trapper, and prospector, one of the relics of the rush to Klondike. He proved to be "one of the best"—never tired (yes, once), never despondent, always willing to do his own work and everyone else's, a good type of frontiersman, a type not to be found in cities, but bred of the

* Siwash=Indian. Corruption of the French "Sauvage."

silence of the wilderness, where reigns that great undescribable something which grips hold of one's unknown self, and never ceases calling and recalling its votaries back to the prairie, the veldt, or the north.

Besides Adsit, our party included a cook—Myers, my English servant W——, and a Siwash named Mat. Leaving Telegraph Creek on August 19th, with six pack and two riding horses, we travelled along for six days with another party of four Americans, who proved very pleasant companions. In the rivers on whose banks we camped we tried to fish with varying success. To fish for salmon in this country is sheer waste of time, even with roe. If the water is fairly deep they can be gaffed, if shallow they can be shot; but caught in a fair and sportsmanlike manner—no. The trout in rivers where salmon are numerous are almost as particular, but where there are no salmon they take a fly greedily, and some fight well, providing capital sport and even better food. I had with me a light steel rod, and fresh trout was a great luxury after inferior salmon and "Chicago chicken" (tinned bacon). With one exception we came across no game save a few ptarmigan and porcupine, though we saw a few moose tracks. The exception might have been inconvenient, if not serious. One morning our horses were nowhere to be found, and were not recovered for several hours, having been stampeded by wolves, who had practically cornered two when Mat appeared on the scene and scared them off.



Nine days on the trail took us to the Nahlin Telegraph Station, some ninety odd miles from Telegraph Creek. Practically the whole way the "trail" had led through glorious country, ever changing from one attractive panorama to another. Forests and dead timber, rivers and lakes, open spaces and bush, valleys and mountains, passed before our eyes in constant succession, and almost seemed to vie with one another in an endeavour to bring fresh victims under the spell of the North. But the journey had another side. In the mad rush to Klondike at the end

of the nineties, many hundreds " hit " this trail, and not all left it. All along are traces of the terrors and hardships experienced ; graves, marked and unmarked, bones of horses, horns of oxen, pieces of mining machinery, remains of carts, each telling a tale more ghastly than the last. Coming back along the trail, when winter was heralding her approach with no uncertain voice, one could only too well realise the sufferings of those whom she caught on the way—inexperienced, unprepared, overwhelmed by ever-deepening snow and increasing cold.

A short distance beyond Nahlin we left the Dawson trail and struck west and north up into the Nahlin Mountains. Pushing through the timber, our trail (partly cut as we went) getting steeper and steeper, we emerged above timber line on the edge of a precipitous " gulch," and this unfavourable moment one of our horses seized upon as the time to show unmistakeable signs of being " all in." Transferring the pack to my riding animal as quickly as possible, we tackled the remaining pitch of bare hillside, and to me it must always remain somewhat of a mystery how our animals surmounted it. I found to my disgust that these mountains held no game beyond a nanny goat and a kid, the sheep apparently having been killed or driven off by the telegraph repair gang from Atlin in the summer. This meant going still farther afield. A long tramp over a plateau, bare except for buck brush and patches of balsam, and then down a steep hillside, brought us to a creek below timber line on the other side of the Nahlin Mountains. After following this creek a short distance we made a dive through the timber and cut a trail still further down into the next valley, where among the Jack pines on the edge of the creek we pitched what was to be our camp for the next ten days.

Steaming through the Stikine Rapids.

The first day was a memorable one. After very heavy rain during the

night, Adsit and I started off late, about 9 a.m., to hunt the mountains at the back of the camp Three-quarters of an hour to timber line, and another three-quarters or more beyond, brought us to a gap in the hills which during the next ten days I was to know very well and get heartily sick of. The rest of the morning and part of the afternoon were spent in trying to crawl round impossible faces of cliff, and incidentally scale a miniature glacier with the help of our knives, but to no purpose. We had either to descend on the far side of the gap or to return. We descended, and almost immediately found a possible way to get on to the tops. I named one bluff, which I had declined to attempt, Adsit's bluff, and when we got nearer Adsit acknowledged that nothing less than a spider or an eagle could have any use for such an elevated perch. The tops in the wind were not a place to sit and bask in the sun, and on we tramped. About 5 p.m. as thoughts of camp were coming uppermost in our minds, we spied a large band of sheep. Camp was forgotten ; glasses came into action, and a cautious advance began. "All yoes," was Adsit's laconic remark, and all ewes and lambs they were ; not a ram among the thirty or forty unsuspecting sheep. Camp again came uppermost in our thoughts. How far had we to go, and how long would it take ? We concluded that we had a two hours' tramp before us, and the time then was seven o'clock. One suggested that we should follow the creek, and follow the creek we did till, darkness coming on, we were brought up with a short turn by a frozen slide of snow remaining from the spring, and forced to clamber up the mountain side and make a detour.

Lord Hindlip. Telegraph Operator.

Operator's Refuge on Dawson Trail.

Up we went, and down we came in more senses than one, through scrub, balsam, and willows growing every way which could hinder ; now plunging into the cold creek, now out again into the timber, now tripped up by a snag ; stopping only to light a pipe and wonder when the moon would rise, and when we should make the big creek in the valley and

follow the moose trail to a fire and camp. Hour after hour we plodded on, wearily but still cheerily. Midnight came . so did the moon. "What's that ?" "Camp fire, I guess !" So it was : so near and yet so far ! We had still to endure more weary plodding, forcing a way through willow patches and warding off boughs, till at last we reached level ground. Another mile and we were back in camp ; time, 3 a.m. ! Everybody was asleep, but the fire was alight, the coffee and beans were still warm, and it was not long before we were between blankets and in the arms of Morpheus. For once Adsit was tired !

On waking next morning, feeling very stiff, sore, and tired, my temper was not improved by serious complaints of Mat's laziness. Tottering down to the camp fire looking for trouble, I found it. Mat was cursing the cook. I took a hand in the game, and a scared, angry, and sulky Indian slunk off to the creek to fetch water. Within a couple of hours Mr. Mat packed his war sack and hit the trail for Telegraph Creek, and we were not sorry to be rid of him.

Sheep Ground.

That day and the following there was nothing doing except a little successful fishing. September 5th, a hard and disappointing day, was the forerunner of better things to come. I located sheep, three good rams, across a big valley on the opposite hills, but they were too clever for me, and long before I could get within range scampered off to take up commanding positions where they could lie and watch their enemy with impunity and contempt. Sunday in my brief career of hunting has been a red-letter day. September 7th was a Sunday, and Adsit and I sallied forth at 5 a.m. to find and kill sheep or retire on to moose ground. It was a nasty cold day, with mist and drizzling rain. Crossing the range of hills behind our camp and the valley beyond, containing a particularly

chilly river, we scaled the opposite range. On the topmost ridge we found tracks of our quarry, and sneaking carefully round a sharp shoulder saw our three self-same rams feeding in a sheltered spot, with a couple of young rams and three or four ewes half a mile or so beyond. A more risky piece of crawling in full view I have seldom undertaken. It was that or nothing, however, and in spite of Adsit's fears, it succeeded. The rest was fairly easy, and within an hour I found myself suddenly in front of the big ram, and only about thirty yards away. Thud ; my little

Adsit. Myers.

Two Sheep (not the best).

Mannlicher did its work, and the ram was down. The other two were racing for their fastnesses, but shots told on both. Ramming in a fresh clip I made good use of my legs. One of the disappearing rams was practically mine already, and a lucky shot at three hundred yards brought down the other. Another ten minutes and I had three as good sheep's heads as any one hunter will ever bring out of Cassiar in a single trip.

While making preparations to return and to preserve the heads and carcases from vermin, the mist cleared, and we looked down on a glorious view. A chain of clear lakes in a deep, well-timbered valley, with rugged

mountains beyond, made up a scene that appeared a veritable paradise. We were where no white foot (so far as we knew) had trod before. It was the most lovely valley I saw in Canada, and I long to see it again, though I fear I shall only do so in my dreams. Fortunate he who can find my guide to take him to this region.

Rain came on heavily, but of this we thought little. Tired out and hungry, but supremely happy, we tramped some twelve miles over two mountain ranges, finishing up with an hour or more through timber in the dark and arriving in camp after eight o'clock, where the head

View on the Trail. Hart Mt. in the distance.

of the finest ram was safely deposited and fresh sheep meat, quickly cooked, made a delicious supper.

On the following day Adsit started about 6 a.m. with Myers and W—— to " pack in " the remaining heads and as much meat as they could carry, leaving Lady Hindlip and myself to keep camp. Fortunately the rain, of which lately we had had too much, kept off, and we spent the day fishing, cooking, and packing in wood. If anyone wishes to keep himself fully occupied from sunrise till he goes to sleep, let him fell trees and pack in wood for a good camp fire, sufficient to last all through the night and leave enough to cook breakfast with. I can thoroughly recommend it to anyone who wants " hunger sauce " to go with his food. While

in this camp the Northern Lights were several times particularly brilliant, lighting up the sky with weird vivid flashes, twisting, twirling, and shooting across the heavens, and presenting a most uncanny spectacle.

After hunting a few more days unsuccessfully for moose and cariboo we retraced our steps over the Nahlin Mountains back to Nahlin Telegraph Station. Winter was now setting in, and the nights were beginning to get distinctly chilly, but not unpleasantly so, though water froze at supper time and the thermometer was in the near neighbourhood of zero. Working our way back along the trail to Telegraph Creek, we camped again to hunt

The Approach of Winter.

on the slopes of Level Mountain, a vast flat-topped mountain, or rather elevated plateau, many miles long and broad, which is a favourite resort for cariboo and moose. Here we had our first snow, and did not find it either so cold or so uncomfortable as might be expected. A very few days, however, in this position were sufficient, and we moved on again across a spur of the mountain to Mosquito Creek. This march nearly proved fatal to the cook. He had taken my little .22 to kill some ptarmigan for the pot, and missed the trail made by our pack train. Darkness came on, and we lit a beacon fire on a high point and a huge fire in camp, and soon after eight o'clock in came Myers. He had fallen

down a "cut bank" some fifteen or twenty feet into the creek, and by some miracle was unhurt. The rifle also had escaped injury, but unfortunately in the darkness he lost half his bag of ptarmigan.

Although our camp here was absolutely sheltered, the cold at night was comparatively severe, doubtless owing to the proximity of water. So long as we kept out of the wind we experienced no great discomfort, but up on the high tableland exposed to the full force of the blast it was bitterly cold, and there I tramped many a weary mile for cariboo. One day about noon, after a hard morning's work, we almost decided to give it up, and

One of our Camping Grounds.

sat down to search the wilderness with our glasses for the last time. "What's that on the skyline?" "Where?" "There to the left of the hill." "Pack train?" "Impossible. Cariboo." Yes, cariboo, our quarry at last. Fatigue and disappointment vanished. About an hour's tramp brought us to near where we had seen them, and then to their tracks. Careful work brought us in sight of the cariboo, and within range of some of their number, but not those which I wanted to bag. Then came a detour, a crawl, more detours, more crawling. Reuben, as I christened the big head, was carefully surrounded by his wives. Dusk

was coming on fast, and this was my last chance. I did a quick sprint round some rising ground, and throwing myself down on a bank found Reuben *en famille* at last within shot. Something strange attracted the band, but too late ; the coveted " head " was low. A second shot secured another stag with a fair head, though not so fine as the first. This also was a Sunday.

The day after was my last day's shooting. Lady Hindlip, Adsit, Myers, and some ponies went to bring in the cariboo, while I had a final hunt for moose. A long cold weary vigil on a commanding point in a biting wind was rewarded at last by my seeing two moose come out of the timber to a pool to drink. The best hunting hours for moose are early morning or nearly dusk, and it was nearly dusk on this occasion. Going my best pace down to the pool, I got there in the nick of time. A pair of horns seemed to look at me. I stood still. They moved ; so did I. A dark mass appeared, and I fired at close range, not over forty yards. On the moose crashed, but I knew my little rifle, and felt no fear that I should lose the beast. My confidence was justified, and in a few more minutes I was hastily wending my solitary way back up the hill so as not to lose my bearings in the dark, not a little elated at having found and killed my only moose unassisted.

Our return journey to Telegraph Creek was unaccompanied by any incident of interest. Here a few other hunters appeared from other districts, having met with varying success. My canoe had come up from Wrangel and was waiting to carry us down. Not so our crew, who obtained more than their load of whisky, and had to wait a few hours in the primitive gaol before we could venture to entrust ourselves to their tender mercies. Bidding *au revoir* to our host and hostess at Telegraph Creek, and shortly after to my guide, companion, philosopher and friend, George Adsit, we started off on our three days' and three nights' canoeing down to Wrangel.

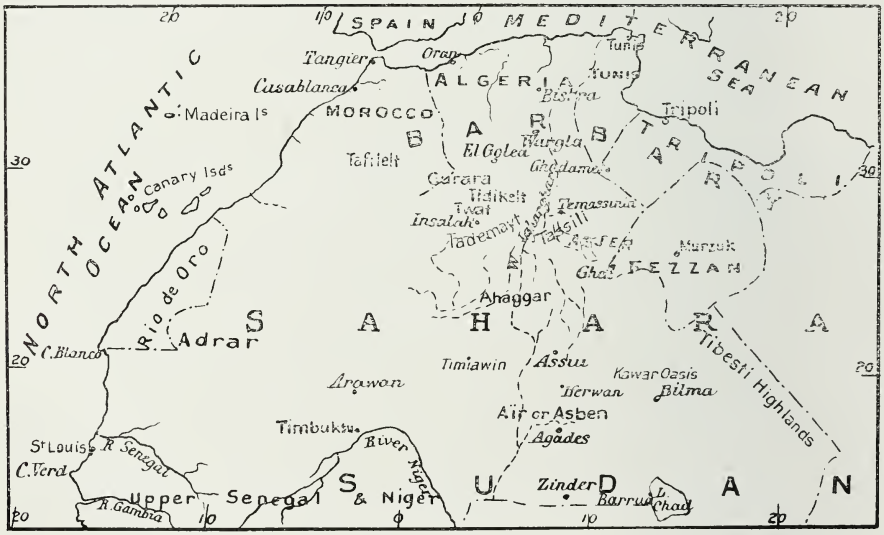
With glorious weather the first evening and night and following day we thought we were in luck. We were soon to be deceived. The second night it began to rain, and it rained all the next day. Our third night we were glad to spend in an Indian hut with drying salmon, bear skins and meat, and wet and tired humanity, only too delighted to escape from the fury of the elements. Space forbids further description of that night. Four whites, my five Indian boatmen, the owner of the hut, his wife, two children, a dog, and a cat, in a hut some sixteen feet square, made a memorable party. The next day we reached Wrangel, and our experiences in the wilds were over.

You readers may very likely enjoy, as I did, a trip to Cassiar, but if you cannot endure discomfort you had better stay nearer home.

The French Conquest of the Sahara.

By A. H. KEANE, LL.D.

The term "conquest" applies to the French Sahara in a twofold sense —geographical and political—as both movements went hand in hand, and were completed about the same time. "Sahara"* in this connection is limited to the western section of the Great Desert lying between the Atlantic Ocean and the historical caravan route from Tripoli through Murzuk and Bilma to Lake Chad. Apart from some vague Spanish claims



on the west coast (Rio de Oro) this is the exclusive French domain, recognized by international treaties and since about 1900 secured by occupation. Even as above delimited, it remains a vast region of perhaps one and a half million square miles, but with a sparse nomad population mostly of Tuareg Hamites, estimated at scarcely more than half a million, distributed in small confederacies in the various oases scattered over the whole area.

From the dawn of history till towards the opening of the nineteenth century the Sahara proper remained as a whole an unknown land, at least

* In Arabic "Sah'rā," a word of two syllables, means in a general way a boundless open space, treeless and somewhat like the Russian "steppe."

to the western nations. We know that the Romans occupied Cydamus (the present Ghadames) and Garama (the present Jerma), capital of the Garamantes in Phazania (the present Fezzan) about midway between Tripolis and Bilma: but then the curtain falls, and there ensues a great void of nearly two thousand years, during which the Sahara figures as a blank space where Ptolemy's Agisymba and Libya Palus (Lake Chad), and other names already known to the ancients, are forgotten and replaced by wild beasts, mountains, or ornamental letters to disguise the prevailing ignorance. The Desert itself first makes its appearance on Jacob van Meurs' map of 1668, as the region which "hodie *Sarra* appellatur quæ vox *desertum* significat." Little more is heard of it till over a hundred years later (1788), when Ledyard and Lucas, despatched by the London African Association, perished in the attempt to solve the mystery. The same fate overtook Hornemann a few years afterwards (1800). Hornemann had, however, before his death made his way from Murzuk athwart the sands to Nupe on the Lower Niger, and this pioneer effort prepared the way for the first successful expedition, that of Oudney, Denham, and Clapperton, from Tripoli through Murzuk and Bilma to Lake Chad (1822–24). Major Laing, taking the Tripoli-Ghadames route, was the first European to reach Timbuktu, but on the return journey he was murdered by the treacherous Tuaregs at Arawan, two days north of that place (1825–26). Timbuktu was next reached from Senegal by the French traveller René Caillié, who was more fortunate in getting safely across the desert to Morocco (1828). Exploring work was now all but suspended till the middle of the century, which opened with Dr. Barth's memorable expedition from Tripoli to Lake Chad, and thence to Timbuktu (1850–55).

[Hanns Vischer, Phot.

The Desert near Mizda, Tripoli.

Meantime the French, for whom since their occupation of the seaboard (1830) the Sahara had become both an Algerian and a Sudanese hinterland, began its systematic "conquest" by two peaceful expeditions from the south and one from the north, all within the period from 1850 to 1860. First came Leopold Panet, somewhat of a free lance, who, starting from Senegal, had to turn aside before reaching Timbuktu, and got half murdered on his way to Adrar and Morocco (1850). He was followed by the better-equipped expedition of Colonel Vincent, who, however, got no farther than Adrar, whence he had to retrace his steps southwards with a rich collection of materials, but with no results so far as concerned the main object of these abortive essays. The same remark applies to the third excursion of 1859–61, that of H. Duveyrier from the north, which is still remembered for its many romantic incidents, although mainly confined to the Algerian fringe and the Ghat-Murzuk route, near the spot where the Dutch traveller, Miss Tinné, was murdered by her guides in 1869. This dangerous district of the Azjar Tuaregs maintained its evil repute by the massacre, in 1874, of the Joubert and Dournaux-Duperré party near Ghadames while on the road to Ghat for Timbuktu; and again by the cruel assassination of the harmless Dr. Erwin von Bary while endeavouring to reach Timbuktu from Ghat *via* Asben (1877). To this learned German naturalist we are indebted for one of the first clear conceptions of Sahara physiography.

Tuareg of the Hoggar Tribe.

During the same decade (1874–84) three determined attempts were made by Victor Largeau to reach the Niger from Algeria, but all failed lamentably; in fact, he never got so far as Tidikelt, partly through defective preparations, and partly because the Tuareg marauders were now at fever heat, having again tasted blood by the atrocious massacre of the

three "White Fathers," Paulmier, Ménoret, and Bouchard, sent by Cardinal Lavigerie not to conquer the Sahara but to convert its predatory inhabitants. How hopeless such a quixotic attempt was may be seen from an incident which occurred in 1896, when some Tuareg tents were set up in the Berresof district, in the expectation of weaning the nomads from their lawless ways. For a little while they allowed themselves to be fed and pampered; but when asked to plant some palms and settle down to a quiet life, they turned on their white masters, rejected the offer as labour unworthy of freemen, and explained that if they wanted to give them gardens, some negro slaves should first be called in to do the work. Next day the tents were empty.

Tuareg eating dates without removing his litham.

Meanwhile railway projects were in the air, and in 1880 a large party was despatched under Colonel Flatters to survey the ground for a line or lines to connect the Algerian system with the Niger and the Sudan. After a false start from Wargla, the ill-starred expedition, which was to be "essentially pacific" though still lightly armed against contingencies, set out for Ahaggar, whence came the ominous message from the Ahaggar chief: "You ask us to open the way for you; we will not do so." Still they pushed on to a point north of the Assian Well, where they fell into an ambush and were nearly cut off to a man (February 16th, 1881). The dead were burnt, and nothing now remains to mark the site of the tragedy. The few survivors took to flight, and most of them perished of hunger and thirst, being driven to devour the dead bodies of their companions, and, as was said, not even waiting for their death. The fierce Tuareg bands prowled round like ravenous hyænas, either blocking the way or offering to the fugitives poisoned dates, so that only about

twenty natives, and not one Frenchman amongst them, got back to Wargla.

Ill-luck continued to dog the steps of the dauntless pioneers, and two of the next ensuing attempts to reach the goal ended in disaster. Lieutenant Marcel Palat, who had started from Oran in 1885 with the intention of trying a new route to Timbuktu, passed first to El-Golea, and then by the Wed Meguiden and Gurara to Auguerat and the Deldun district, where he was well received. But now began the troubles referred to in the last letter received from him, which bears the date of Twat, February 1st, 1886, and in which he writes that "J'aurai la prudence nécessaire, mais je passerai coûte que coûte." But it was not to be, and four days after leaving Gurara for the second time he was led into a snare and shot by his guide at Hassi Sheikh, west of Insalah. The same fate overtook Camille Douls, who twice set out from Morocco for Timbuktu, and after many adventures, disguised as a Marabout, was strangled and then beheaded by his guides while asleep at a shady well (1889).

Tuareg Women of the Ruara Tribe.

It was now brought home to the dullest intellect that no real progress could be made by private or ill-equipped expeditions, which resulted either in disaster, or in trivial geographical and political gains, without any permanent value either for science or for the French dominion in North Africa. It seemed like pouring out a stream of vital energy only to be absorbed in the sandy wastes. Hence with the last decade of the dying century was introduced a thorough change of policy, the base of which rested on the Anglo-French Treaty of 1890, by which the French Saharan

territory was delimited southwards by a line drawn from Say on the Niger to Barrua on Lake Chad. Later (1898 and 1904) this line was shifted some distance farther south, thus leaving to France a considerable portion of the rich Zinder district about the borderlands of the Sudan and the Sahara. Having in this way secured unchallenged possession of the vast Saharan domain, the French lost no time in organizing military expeditions for the reduction of their double hinterland, which was now approached simultaneously both from the north and the south, with a view to its final political and geographical conquest. The capture of Insalah (1900), which dominates the extensive group of Twat oases, prepared the way for the occupation whenever convenient of the Tafilelt district, which has been aptly called "the backdoor of Morocco." This had been preceded on the Sudanese side by the seizure in 1895 of Timbuktu, a masterly stroke, the full significance of which was thoroughly understood by all the Tuareg confederacies. It at once ensured the happy issue of the scientific excursion undertaken in 1896 by Professor Flamand, who surveyed the whole region south from Oran, and collected in the Western Erg, the Wed Gharbi, Tademayt, and neighbouring districts, copious geological, geographical, and archæological details for his great map of the Sahara, the first trustworthy presentation of that region. One point calls for special mention. M. Flamand revealed in the Tidikelt district the presence of lower red sandstone (Devon), carboniferous, and other old formations, which connect the coal measures of the Azjar district reported by F. Foureau with those of the Moroccan Sahara reported by Oscar Lenz. Thus is dispelled the popular idea that the Sahara is new land, a marine bed upheaved in relatively recent times from the Atlantic Ocean.

But throughout the 1890–1900 decade the dominant figure is that of the just-mentioned M. Foureau. He first appears in 1882–3 as leader of an expedition from Wargla to Hassi-Messeguem, which, however, only got by a partly new route to Hassi-Uled-Aïsh *via* Hassi-Jeribia.

This was followed by several notable excursions, nearly all radiating from Biskra and extending over the years 1890–97, during which this indefatigable explorer crossed the Eastern Erg no less than thirteen times and solved the problem of the Igharghar, that great "fossil river" which with its wide-branching tributaries was formerly supposed to drain through the Gassi Twil waterway, but was now shown to have sent a volume as large as the Rhine straight to the Mediterranean.

Several attempts made by Foureau to reach Aïr or Asben having failed, the central and southern parts of the Great Desert still remained almost untouched. Hence to force the passage a small but well-armed body of about 300 men was placed at the disposal of Foureau, with whom was associated Commander Lamy, besides a number of officers and

naturalists. Thus effect was at last given to the universal conviction that the geographical and political problems must be solved together, and moreover that the apparently formidable Tuareg Confederacies would be found strong only in the weakness or hesitation of the French intruders. Such proved now to be the case, and the "Foureau-Lamy Mission," as it came to be called, takes rank as one of the most brilliant undertakings of which there is any record. Leaving Wargla in October, 1898, it made first for Aïn-Taïba and Temassinin, and then plunged fearlessly into a completely unknown region as far as Assiu (In-Azawa), where it struck Barth's itinerary. Here all existing maps were found to be wild, and had to be rectified, after which the rugged and hitherto unknown Adrac district, with peaks 5,500 feet high, brought them to the Atlantic-Mediterranean water-parting, which was crossed at an altitude of 4,570 feet, under latitude 25° N. Beyond Iferwan, the first Asben village, they were twice unsuccessfully attacked by the Kel-Geres and other Tuaregs, and on one of the slain were found some fragments of papers belonging to Dr. Von Bary, who had been killed in the district.

A long stay was made at the important town of Agades, which was left in October, 1899 (just a year out from Wargla), for Azawak, Tagama, Damargu, and Zinder, where they were met by a detachment of some Senegalese rifles. From Zinder, where the primary object of the mission was accomplished, the expedition marched through friendly or already subdued lands to Lake Chad, where it joined hands with two other French missions—that under Joalland and Meynier, from the Niger, and that under Gentil from the Congo. In the ensuing battle with Rabah at Kussari, the united forces gained an easy victory over the usurper who was slain though Lamy also fell (April 22nd, 1900). The work of the expedition was done and more than done, since the Central and Southern Sahara had been to a great extent conquered both physically and politically, while the victory at Kussari has enabled the French to consolidate their various Central African possessions—French Congo, West Sudan, and the double Saharan hinterland.

In this hinterland, however, much remained and still remains to be done, before its present rulers can decide on its ultimate destination. Following in the wake of the flag, several trading parties have sought to open up commercial relations with the interior, and to study its economic resources. In 1892 M. G. Méry passed from El-Wed through Aïn-Taïba to El-Biodh, surveying on the way the great Gassi which had been discovered during Flatter's first mission. But he failed to get much farther, and had to return to El-Wed. Next year he started for the Azjer country, hoping to obtain from the chiefs the free opening of their territory for caravans destined for the Central Sudan. After an unsatisfactory interview with them at Lake Menghugh he returned to El-Wed, taking

useful astronomical and meteorological observations *en route*, and bringing back valuable botanic specimens. But on the economic question his report flatly contradicted those of his predecessors, Foureau, amongst others, declaring that the trade between the Mediterranean and the Sudan was insignificant, while Méry described it as "very important." In the same year, 1893, Méry started again with a large party to glean the fruits of his first mission; but he quarrelled with his companions, returned to France, and went thence to Timbuktu, where he died after

Camels crossing Sand Dunes.

opening commercial relations with Europe. The mission of 1894 fared no better, and its leader, M. d'Athanoux, was set upon by the Ifoghahs, who followed him like hungry dogs clamouring for bakshish and provisions.

These first essays were too discouraging to invite a renewal of similar attempts, especially after the murder of the Marquis de Morés, who tried in 1896 to lead a caravan from Tunis into the heart of the land. Nevertheless, despite these repeated failures, commercial relations have acquired a considerable development, at least in the western and south-

western oases, which had all been brought under French control early in the present century. The last military expedition that can here be mentioned was that led by Captain Flye-Sainte-Marie in 1905, against the marauders from Tafilelt, who were raiding along the tracks formerly followed by René Caillié and Oscar Lenz, and traversing a region still very imperfectly known. But all the trade routes between Morocco and the Sudan were now surveyed, the military and geographical interests being, as heretofore, everywhere consulted. It may be stated that in

Tuareg Women of the Hoggar Tribe.

1905 the exchanges in the South Moroccan region rose to about £30,000, although the through trade with the Sudan no longer existed, owing, no doubt, to the arrest of all slave raiding and trading by the French posts stationed along the caravan routes.

After the occupation of Insalah the reduction, or at least the pacification, of all the confederacies was taken seriously in hand, and in 1902 Lieutenant Cottenest inflicted a heavy blow on them at Tit, in the Tidikelt district. This battle of Tit may be taken as a turning point in the history of the conquest, since there was henceforth scarcely any more

fighting, while the reduction of the various Tuareg groups was rapidly effected by peaceful means. Later in the same year, 1902, Lieutenant Guillo-Lohan was able to march round the Ahaggar uplands without meeting with any resistance from its hitherto defiant inhabitants, and in 1903 similar operations were carried out by Commander Laperrine. The Kel-Owi of Asben and the Ifoghahs of the eastern Adrar now tendered their submission, and they were followed in 1904 by many of the Hoggars and Azjars, hitherto reputed to be the most hostile of all the Tuareg groups. In the far south the Kuntas of the Timbuktu district had long been reduced, and in 1903 the powerful Awelimmiden Confederacy ceased all further resistance. About the same time the occupation of Agades, soon followed by that of Bilma, brought all the southern trade routes under complete control, placed in the hands of the French the rich salt-pans of the Kawar Oasis, and enabled them to hold in check both the restless Tuaregs on the west side and the indomitable Tibbus on the east.

Thus was established what we may call the *Pax Gallica* throughout the Saharan domain, where more effective geographical and political work was accomplished between 1900 and 1908 than during the whole of the previous seventy years. Striking evidence of the general pacification was afforded in 1904 by the two lightly armed excursions which started, one from the north under Laperrine, the other from the south under Théveniaut, and met at the Timiawin Wells, about midway between Algeria and Sudan, without encountering a single Tuareg marauder. In 1905 a similar experience awaited M. E. Gautier, on his journey from Twat to the Niger, a witness, as he tells us, " of the ease with which peaceful travellers can now cross the Sahara in all directions."

It was above seen that this region is not a marine basin, but very old land, standing high above sea level, at least since the Devonian and carboniferous ages. It must now be set much further back, the same M. Gautier having observed in the parts traversed by him vast *Silurian* formations, extremely folded and almost everywhere metamorphized. M. Chudeau also reports in other districts extensive Silurian and even Archæan rocks, diversified with lofty igneous peaks and cones. The reader will have further noticed that before reaching the continental divide the Foureau-Lamy expedition had to cross the excessively rugged Adrac district with high ranges rising upwards of 5,000 feet above the sea. Hitherto this was no doubt supposed to be " a vast flat expanse of burning sands," such being the general popular conception of this vast wilderness. A more accurate notion can now be formed, especially of its western or French section, which the explorers here dealt with describe as a boundless, treeless and nearly waterless expanse, with great stretches, not so much of flat, as of billowy sands, shifting with the winds,

stony hammadas, rocky plateaux, green oases, and hilly or mountainous uplands. Its general uniformity, noticed or felt by all, lies not on the surface, but so to say in the air, being mainly or perhaps entirely due to a deficient annual rainfall, which nowhere exceeds and usually falls below ten inches. Several great divisions are distinguished, possessing more or less marked peculiarities, such as the Eastern and Western Ergs, where the sandy element prevails ; the Tripolitana hammadas, distinctly stony and excessively arid wastes ; the Tademayt, Tassili, and other thinly inhabited plateaux ; the more densely peopled Ahaggar and other terraced uplands, convenient retreats of lawless, predatory hordes ; great mountain ranges, real highlands, such as the almost Alpine Tibesti range ; lastly extensive groups of oases, such as those of the Twat and Fezzan districts.

After the unfavourable reports of the Foureau-Lamy Mission, and the above-mentioned abortive trading excursions, the *cui bono* question was raised, and people began to ask what return was going to result from all this expenditure of treasure, blood, and heroism. Those who have taken the most active part in the operations are most pessimistic, and frankly declare that the Sahara may have some political value, but is economically worthless. There are no natural resources, no minerals, no industrial or alimentary products, nothing but salt in the extreme south-east, and dates in the extreme north, and since the stoppage of the slave trade the caravans have ceased to pay. Hence it is not surprising to hear that at present the balance of exchanges " se réduit à presque rien," that the Sahara appears to be " d'une valeur économique faible et presque nulle," either in itself or as a means of communication between the Mediterranean and the Sudan, and consequently that the projected railway and telegraph systems would be like living arteries in a dead body. Dr. J. S. Keltie put his finger on the weak spot some years ago, and most sensible people now accept his appreciation that it will be time enough to turn to the empty Sahara as a last resource, when those of all other lands are used up.

Idle Days in Southern Spain.

By S. L. BENSUSAN.

The joy of travelling in Spain will never be understood by the great majority of restless tourists who make their journey to the South by way of the Pyrenees and Madrid; nor will the pleasure of life in Don Quixote's country be known to the patrons of hotels that have nothing more Spanish than a French chef and a British scale of charges. But let the traveller turn into Andalusia's byways, and he will find that though the costume of the eighteenth and early nineteenth century has suffered change, in all or most other aspects life seems to pass along much the same as in the days when Goya's marvellous brush recorded a society of which the rest of Europe knew little or nothing. My first visit to the Iberian Peninsula was paid in the early nineties, when I was but twenty-one and knew few other countries. Since then I have been a wanderer in many lands; but Spain comes back to me with perennial freshness, and if inclination guide my footsteps it is there my holidays are spent.

[F. R. Sternberg, Phot.

Bridge at Ronda.

The idlest of all idle days may be passed in the Spanish train. It is no roaring, bustling affair like the train of other countries; it is something that contributes to the interest of village life, stimulates gossip, and

quite incidentally takes passengers from one place to another in a manner befitting a country that has no use for haste.

I remember once when going on a short journey in Andalusia the train that carried me stopped at a small junction. The station buildings were all on one side of the line, and comprised a charming little farmhouse and a glittering flower garden half screened from passengers by a wall of sun-dried *tapia*. Tickets were issued in the farmhouse kitchen, which was made as official as possible by the presence at its door of two members of the Guardia Civil who were on duty. These good fellows smoked cigarettes and chatted affably with passengers, but carried real carbines and wore cocked hats, that no evildoer might seek to carry off train or station, or even hold passengers to ransom. While we were at rest here, after travelling at the rate of at least twelve miles an hour, the driver uncoupled his engine and proceeded down the line with it, in the direction we were not to take. The passengers walked contentedly up and down, smoked countless cigarettes, ate oranges, resisted the importunities of beggars, or watched the bloom of figs, pears, and quinces in the orchard. At last I became uneasy, and asked where the driver had gone. "Pedro has run down the line on his engine to take a birthday gift to his mother who lives over there," explained the station-master. "He is indeed a good son, and will not trust his parcel to the post. Spain is full of thieves." And when the good son had come back from his mission, he restored the engine to its proper position, and we re-entered the train, which went on its journey after three-quarters of an hour's delay.

On another occasion, just as we were leaving a wayside station, some young turkeys escaped from the garden, and the station-master stopped the train lest it should do any damage to them. As some of the passengers were in a hurry that day they left their carriages, and with the aid of brooms and sticks provided by the station-master's wife hunted the errant poultry home. Then we were allowed to proceed. If Time is your servant all this does not matter; if he is your master of course you do not go to Southern Spain.

Even between Algeciras and Bobadilla, over a line that is well managed by a Scotsman, the Spaniard manages to leave the route supremely interesting and to make the least possible surrender to the business instincts of the Saxon. If we take Sevilla or Cordova for our objective —and surely there are no cities in Europe that invite more pleasantly to idle days—it is well to choose this route, more particularly if you have travelled by sea to Gibraltar as so many people do.

In England no man is a hero because he travels by rail; in the villages of Southern Spain I am inclined to think that the case is different. Indeed, you advance in the social scale in Andalusia's countryside if you have so much as a friend who travels in a train. When the engine pants into the

station, conscious of a great task nobly done, all the village is assembled to meet it. The function corresponds in Andalusian fashion to Church Parade in Hyde Park. The station-master moves with an air of distinction through one of the most interesting crowds to be seen anywhere. Children —of whom three out of four are beautiful—are present in great numbers ; there is no School Board to make them scholars in spite of themselves.

A Spanish Water Carrier.

Very often the girls have no shoes or stockings, but nearly all have a flower in their hair, or a handkerchief arranged as a mantilla. Many unoccupied men are to be seen ; all are smoking, nearly all have forgotten to shave. Beggars, who seem to thrive by the exercise of their profession, go from carriage to carriage, pleading for charity in most pitiful accents. Happy is the man who can boast a mutilated limb or an

incurable disease that has outward and visible manifestations. The healthy members of his brotherhood look upon him with keen envy. The few people who, by some unfortunate accident, were born industrious, march up and down the platform with big earthenware jars full of water, for heat and thirst are chronic. Girls carry baskets of oranges, and in all the larger stations you may find modest refreshments provided at a stall, generally in the shape of rolls half cut through to admit the insertion of a slice of greasy sausage.

Beggars at the Gate of a Convent.

Seeing the amount of public interest taken in the train's arrival, the station-master would be a callous fellow if he sent the long-expected visitor away too soon. I am inclined to think that he enjoys his official position immensely; indeed, I have seen him stroll up and down in front of the train with his wife on his arm and his numerous family at heel as though he felt he had not lived in vain. Only when he realises that the train has done its duty by the district does he ring his bell with an energy and vigour worthy the occasion. He rings until he is tired,

and then the train moves off very slowly, and the ticket tormentor appears suddenly from the knifeboard and demands your ticket that he may mutilate it further. I believe that the inspector must be a lineal descendant of the old-time Inquisitors. Nothing else will account for his cruel pleasure in defacing the tickets entrusted to his care. He has all the suspicion of an Inquisitor, too, and will appear before you suddenly at odd times of the night, as though fearful that some intruder has reached the carriage by way of the lamp hole, or by jumping on to the knifeboard that is his own happy hunting ground.

The journey to Sevilla, by way of Algeciras and Ronda, or even by the lesser-known route from Huelva, is full of curious interest. Villages on either side recall the Moorish occupation of Spain. They are screened with hedges of cactus, aloe, and prickly pear, in fashion that suggests an Arab douar. Here and there one passes cork woods, the dark red trunk showing beneath the stripped bark; a file of mules loaded with the produce of the woodlands plods over the tracks to the music of their own tinkling bells, in charge of a gaily-clad muleteer; olive and eucalyptus fringe the woods, and in spring the yellow gorse flames along the hillsides where patches of brilliant broom and irises help to lend variety to the colour schemes.

Between the stations are the huts of the signal men or women, and as he approaches one of these the driver always puts on steam and passes at top speed, as though to remind the watchers that a train accustomed to stop in railway stations cannot communicate, even distantly, with mere hand-signal folk. There are orchards along the road whose colour in blossoming time is a feast to the eye, and in spring the southern land is so full of flowers that one might think that April had showered down roses instead of rain. Even the hard workers seem to enjoy themselves, and to remind the travellers that when the Moors were in Andalusia they raised three crops a year from one field. Now and again the engine runs—no, I should say strolls—through valleys cut in the limestone rock, and there one may look for romantic caves and rushing waterfalls, while the overwhelming whiteness of the earth seems to lend a deeper blue to the sky, a keener freshness to the air. Here and there one passes a bull farm, where the fierce animals are bred for the Plaza de Toros. You see the bulls feeding peacefully, kneedeep in lush grasses born of the first rains, with some ganadero, or bull farmer—always a horseman and a dandy—watching over their welfare. Anon one encounters a herd of pigs driven by some barefooted lad who is puffing at a cigarette, though in all probability he has not a *real* to his credit. Poor he may be, and hard-worked, but he has all the sunshine he requires, sufficient food, of the coarsest kind, and no knowledge of the more complicated problems that come into life side by side with education. So he passes along the dusty

road that winds amid the fields like a white thread, singing to his heart's content as he drives his charges to pastures new, and the pigs do not mind his singing so long as he finds them roots and acorns in plenty. Sometimes when he has found suitable pasture for his charges, he turns his thoughts to music and plays a pipe as did the shepherds whom Theocritus has made immortal.

If you travel far enough on the Spanish railway you come to a really big junction, where trains congregate and a big *déjeuner* is served in the restaurant. There you may chance to find the train that carries his Spanish Majesty's mails, the real "Oficina Ambulante Servicio de Correos." It is splendidly blazoned, and is as full of pride as of letters, but it is never in a hurry. I remember some years ago reaching Bobadilla Junction on a journey to the capital. A mail train southward-bound was in the station. I was preparing to make my way to the buffet when the guard warned me to stay where I was. "We are not going to stop," he explained; "we are late already." I could see the restaurant and hear the stimulating clatter of spoons against plate; I saw white-aproned waiters moving with dignity to and fro, laden with the good things of the earth. I felt inclined to let the train go its way, but in the morning I had wired to a friend to meet me in Madrid, and delay would have cost me twenty-four hours. So I remained as disconsolate as the Peri outside the gates of Paradise, and far more hungry. Some twenty-five minutes later the engine driver ceased to talk politics with his brother of the mail train and a small group of unshaven patriots, and condescended to accept the long-standing invitation of the signals. When the train reached Madrid on the following morning my friend was nowhere to be seen. Slowly though we had travelled, we had outpaced the telegraph office, and my telegram arrived in the afternoon. Perhaps it was sent by post. In countries where public service is poorly paid, and business is a negligible quantity, stranger things happen.

Even night travel on Spanish trains is full of interest, and the evening colour along the line is wonderful. The sunsets, with some wonderful scene painted on a background of gold in manner that recalls the earliest art of the Tuscan school; the hush that comes over the land with fading light, conjuring up memories of landscapes by Puvis de Chavannes or Camille Pissarro; the blossoming trees that look like ghosts, and the little girls holding signal lights by the side of butts set at some wood's edge, just as though they were kindly fairies—these are things not to be forgotten. The journey is not without its troubles. When a station is reached, little boys come to the railway carriage to shout "Agua, Agua." Officious porters will insist upon renewing foot-warmers, though the carriage is already unpleasantly hot. Your fellow travellers have a most unhealthy contempt for ventilation, and, in the miniature whirlwind that

Torre del Oro, Seville.

follows the sudden opening of the carriage window, the ticket tormentor pays a midnight call to do what further harm he can under the cover of darkness. But as soon as the morning comes, you forget these discomforts, and when you see shepherd or goatherd lying on the grass and piping to some Amaryllis who sits not too far away, you may think for a moment that, in Milton's words, "Time has run back to bring the Age of Gold."

It is quite time to leave the train now, for to tell the truth the days one spends there are not quite idle. The scene shifts too rapidly; the calls upon eye and ear are too insistent, and even the Spanish train takes you to your destination, if you will bear with it patiently. For me the two idlest and sunniest cities of Spain are Cordova and Sevilla, both on the Guadalquivir, both steeped to the throat in the Moorish tradition. Indeed, the name Guadalquivir is no more than the native

rendering of Wad el Kebir, which is Moghrebbin Arabic for "The Great River."

When the train leaves me at Cordova and ambles off with other travellers bound elsewhere, I like to banish all thoughts of the larger world, and to be as far removed from letters and newspapers as are the monks and hermits of the Sierra Morena, the hills that girdle Cordova and may have heard the echoes of Rozinante's hoofs when Don Quixote fared abroad to win undying fame for Dulcinea del Toboso. The little city is quite Moorish, almost as Mohammedan in aspect and feeling as it was in the far-off days when the Caliphs held sway, when the mueddin looked out over the Court of Oranges where Abdurrahman's fountain plashes still, and when the echoes of his sonorous call to prayer rolled through the Hall of a Thousand Columns. Some seven hundred of these pillars still remain. They are of the rarest marble, and not easily to be seen in the perpetual gloom — a gloom which in the palmy days of Islam was dissipated by eight thousand lamps. Even today the Court of Oranges has much of the aspect of the East, and the

[F. R. Sternberg, Phot.

The Cathedral, Cordova.

beggars who sun themselves there or seek the shade of cypress or of palm during the "hours of fire," seem to be part of a world that has nothing in common with the Twentieth Century.

In the sleepy market-place, where the glow from the oranges and lemons seems to light up the dark faces of the women who sell them, there are countless little *cicadas* for sale in tiny cages. The poor little insects have no room to turn round, but they sing as cheerfully as they did among the

[F. R. Sternberg, Phot.

The Hall of a Thousand Columns.

tree-tops in the days when they were free. Life here, as in other parts of Spain, is full of cruelty; the indifference to the sufferings of what we are pleased to call lower forms of life is very noticeable. Cordova has one café, beloved of the bull-fighting fraternity, where I have seen the great Rafael Guerra, Spain's greatest bull-fighter, now retired. I remember the days nearly ten years ago when he was at the top of his form, and could kill as many as nine or ten bulls in a single day, travelling in order to do so from one town to another by special train. Then he was

so well-beloved of the populace that he could draw an income of thirty or forty thousand pounds a year from his poverty-stricken country. To-day he is rich beyond the dreams of avarice—a Spaniard's dreams—and has a great estate outside Cordova, this quaint old city wherein, folks say, his father worked as a butcher. You see toreadors in plenty at this same café of his special regard, vigorous athletic men, who wear short coats, open-worked shirtfronts, and tight waistbands, and have

[F. R. Sternberg, Phot.

Girls in the Orange Court of the Cathedral, Cordova.

their hair in a pigtail. There is a bull ring close to the railway station, but it is a plaza of the second class, in no way renowned.

In Cordova you may be idle all the day. Time himself seems to drop the hot-foot pace at which he persecutes the bustling west. Such industries as the place may have seem to be agricultural. The shopkeepers do not seek custom, and if it comes in the hours when they are wont to take a siesta they positively resent it. I remember visiting an old bootmaker's shop at one or two o'clock in the afternoon, when I

should have been asleep. He told me as much, and as my Spanish ran very lamely to apologies and explanations, it was some time before I could get the sorely-tried man to accept my expressions of regret. Then, when the boots were purchased, he had no change, and wanted me to give him back the boots and come on the following day!

By night the *sereno*, or waterman, keeps watch and ward over Cordova's safety, though it is permissible to suggest that nobody in the city has sufficient enterprise to set up business as a burglar. Indeed, the malefactor, were he young and active, could deal readily with the *sereno*, who is old and feeble. To be sure he carries a lantern, a spear, and a rattle, but his hardest task is to proclaim the hour in the wake of the city's clocks, to declare that the face of the night is fair or cloudy, and to praise the Maria Santissima from whom all blessings flow. Yet the *sereno* presents a welcome figure as you stroll into the city in the small still hours from some countryside inn that knows no licensing laws, and that will supply your simple wants until the proprietor can no longer keep awake. He will courteously lead you home if you have lost the clue to the maze of streets lying so peacefully under the pale light of the moon, and though he be as poor as the cathedral mice he is every inch a gentleman, your friend and obliging companion. Even the little tribute of silver that marks your parting does nothing to lower him in his own eyes or yours.

From Cordova to Seville it is no far cry. You can make a walking journey of it in four days by way of Carmona and Alcala, an easy ride in three, and if you are in a hurry—a most unlikely case—you can ride hard or take the train. The dusty road is best for all its faults, and for all the roughness of its wayside accommodation. On the road by the Guadalquivir's banks in a part where some cypress trees gave the surrounding country quite a melancholy aspect, I once met the most tattered beggar I have ever seen. Only the special grace of the Maria Santissima kept his rags together; his worldly possessions were a staff, a frayed leather wallet, a piece of hard bread, and a couple of oranges. And yet he was as human as that St. Felix whom Murillo painted, his happiness was positively infectious, he sang an old ballad with a powerful voice that had good sense of music, and when I gave him a handful of cigarettes and a couple of *reals* he took off his tattered hat and vowed he would not change his state with the King. Then I noticed for the first time how beside the cypress trees the yellow broom was flowering, and that the countryside really looked very bright indeed. When I think that the world has been using me ill, or reflect upon the small quantity of moss that rolling stones collect, I remember my beggar friend by the river bank a few miles out of Cordova, and contentment follows on the heels of recollection.

A Hundred-Mile Ride in Persia.

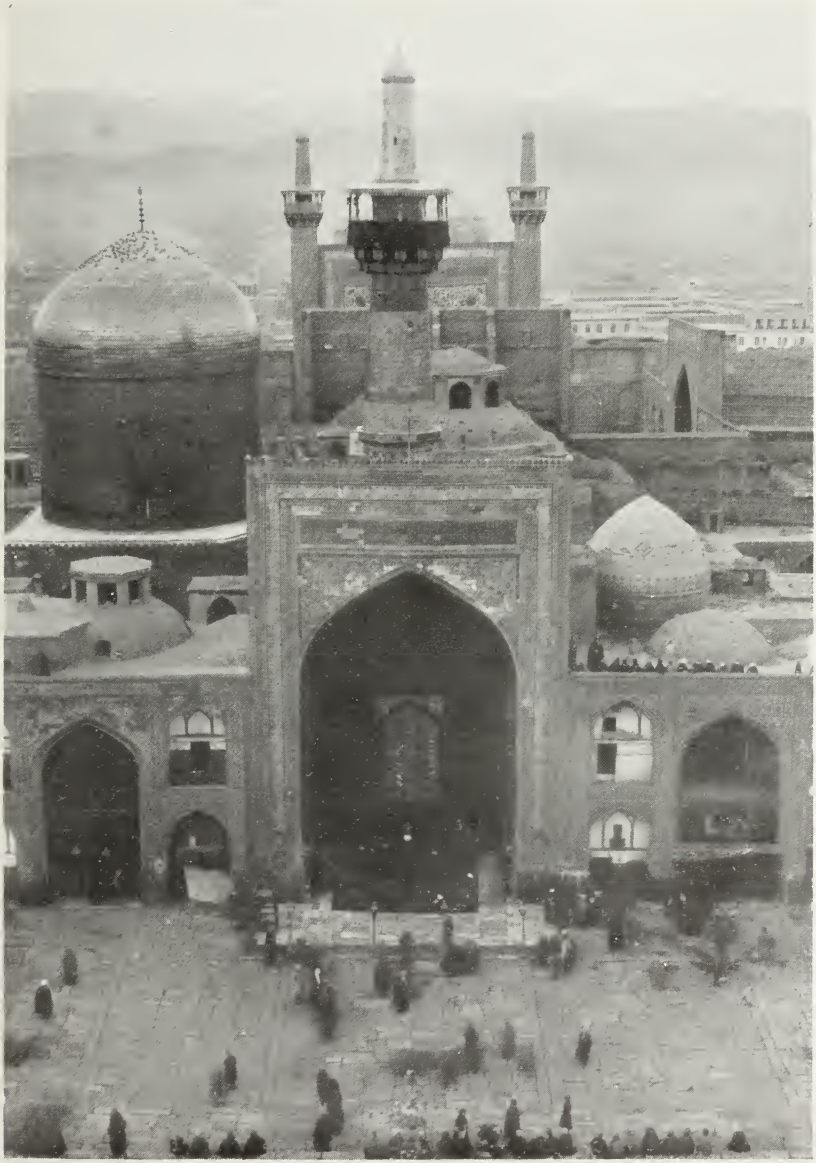
By ELLA C. SYKES.

Author of "Through Persia on a Side Saddle."

The little European colony of Meshed in the north-east of Persia looks upon itself as being quite in the world, only a hundred and sixty miles separating it from the Transcaspian Railway at the Russian military centre of Askhabad. This distance can be negotiated in stoutly-built little victorias that travel at a good pace along an unmetalled road, which from Kuchan to the railway station has been engineered by Russians and is a creditable piece of work. Where the road crosses the mountains separating the Persian uplands from low-lying Transcaspia it has surprisingly sharp corners, round which the drivers dash their team of four horses abreast with what seems suicidal speed, and as the bedrock and large boulders crop up in places, the jolting and shaking are far from agreeable.

This so-called Askhabad road is known well enough, but there is a shorter route to the railway which few travellers have tried, as it is closed during a great part of the year on account of the snow and is not provided with rest-houses. To the north of Meshed, across the mountain barrier which bounds the great plateau of Persia, a mule-track leads to the station of Khakr, which is only a hundred miles from the Sacred City, and there the train halts on its way to the Caspian, having come from such historic towns as Samarkand, Bokhara, and Merv.

On a fine morning last May we started from Meshed by this route, leaving the gold-domed shrine of Imam Reza behind us. Our tents and baggage were carried on mules, and we ourselves rode sturdy Persian horses, while the baby of the party and his nurse took the road in "kajavehs," or panniers. Our way led up the broad valley of the Kashaf Rud, bounded on either hand by mountain ranges, and past the beautiful shrine of Khwajah Rabi, its blue-tiled dome gleaming through the trees that surround it. He in whose honour the shrine was built was one of the "Companions" of Ali, the saint *par excellence* of Persia, and his last resting-place was erected by Shah Abbas, a contemporary of our Queen Elizabeth. Farther up the valley the Kashaf Rud flowed between high banks, and we crossed the river by a bridge in remarkably good repair for Persia, proceeding up a stream bordered by mulberry trees in full leaf, and past mud-built villages surrounded by



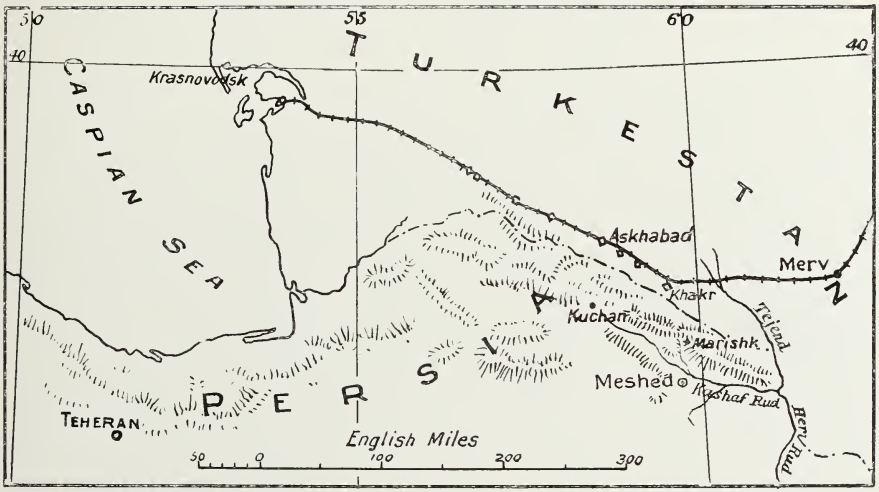
The Shrine of Imam Reza at Meshed.

[Sevraguine, Phot.

Outdoor Costume of a Persian Woman.

vineyards. The vines aroused our curiosity, as they were planted in trenches some twelve to fifteen feet in depth, the branches being trained to climb up the high banks between the ditches. Persians affirm that this method protects the roots from the intense cold in winter, and also helps to keep them moist during the summer heat.

Our first halt was by the river, and none of the party enjoyed much rest that night, as caravans with jangling bells were continually passing along the road, and the blue jays began to scream to one another with the earliest gleam of daylight. The second stage led up and up by rough tracks into a magnificent defile, where cliffs rose on either side to an enormous height, standing up sheer from the river Tangi, which we were continually crossing and re-crossing. The dog of the party rushed up



the steep rocks of this gorge, gloomy on the brightest day, and in trying to get back tumbled headlong into the river, but luckily the water broke his fall and he escaped scot free. After a while we emerged from the dim twilight as the defile widened out into stretches of lush grass, and in one place masses of watercress were growing, which made a welcome addition to our *al fresco* lunch. When the steep parts of the track were reached we were obliged to dismount and lead our horses up and down long precipitous slopes, slippery with gravel and loose stones, and now I was thankful that my mount was strong and surefooted, and that he neither trod on my heels nor hung back when I led him; in fact, throughout the five days' ride he proved a veritable treasure.

Here and there were little valleys, with patches of cultivation surrounding occasional villages which looked as if built out of the

castellated rocks on which they stood ; while on all sides towered lofty mountains. The sky had been overcast all day, and now thunder reverberated among the hills, vivid flashes of forked lightning began to play, and the rain came down in such torrents as literally to drench everyone to the skin. There was a hurried rush to the large village of Marishk, fortunately not far off, where we found refuge for the night and dried our dripping garments, feeling most thankful that in such a deluge we had a roof over our heads instead of tents. The " khan," or squire, of the place hospitably put his house at our disposal ; fires were lit, usually a smoky proceeding in Persia, and our host's womenkind surveyed

[H. R. Sykes, Phot.

A Hill Village near Meshed.

us with great interest, saying that they had never seen " Feringhi " ladies before. The fair skin and blue eyes of the eighteen-months'-old baby boy of the party aroused a perfect torrent of enquiries, and Persian babies of about the same age were produced to compare with him, the English boy holding his own well against all comers. Gliding among the laughing young women and children came and went an old white-haired crone shrouded in black. She peered at us furtively for some time, and at last taking courage executed a fantastic dance before us, throwing up her long arms and snapping her fingers like castanets, her black eyes gleaming so wildly, and her shrill laugh sounding so uncanny that we were

not surprised to hear that she was mad. By and by our leader made his appearance, and every woman hastened with much ostentation of modesty to cover her face with her cotton veil, until the master of the house arrived and "shooed" his ladies away just as if they had been a flock of hens! Huge wolfish-looking dogs prowled about the courtyard above which we were sitting, and here a sheep was brought to be slain for the evening meal, our hospitable entertainer being much surprised when he was asked whether the poor animal's *coup de grâce* might not be given elsewhere.

[H. R. Sykes, Phot.

In the Hills near Meshed.

Our third day's march was made in fine weather, and we left our night's shelter in good spirits, with many a backward glance at the village, which was perched among conglomerate rocks in such a way that it was hard to tell which was rock and which sun-dried brick. Hoopoes, blue jays, and magpies were flying about, the call of the cuckoo echoed among the hills, while poppies, cistus, tiny scarlet tulips, little irises, tall eremuri in bud, orchises, barberry, sweetbriar, and handsome thistles were growing on either side of the track, which led up the valley across many

torrents. We halted for lunch about half-past ten, and were quite ready for a meal, as we had all risen at five o'clock; and, indeed, we needed something to sustain us over the difficult road that lay ahead. Again and again we had to dismount and struggle up and down breakneck places, and during one very steep and long pull we met a party of Bokhariotes singing at the top of their voices and descending the boulder-strewn hill at a good pace on their sure-footed mules. However dangerous the road, it is an almost unheard-of proceeding for an Oriental to walk if he has an animal to carry him.

[H. R. Sykes, Phot.

A Rocky Valley in North-Eastern Persia.

At the top of this pass was a grassy plateau. Patches of snow lay on the hills facing north, and the juniper was growing everywhere, either as shrubs or as good-sized trees. To our right the ground descended in a sheer precipice, and we had a glorious view over a sea of mountains, the peaks standing out barren and grey, with slashings of red. The side of one mountain had been torn away by a landslide, and the whole scene was one of intense loneliness and desolation. As we descended from the plateau we came to the worst part of the road, which resembled a

kind of long rocky staircase, down which we struggled painfully, our horses stumbling along behind us, and our leader carrying the baby. At the bottom of this stone ladder a magnificent waterfall hurled itself with two great leaps into a swiftly-rushing stream, which we had to cross by means of rough boulders, over which the water was dashing freely. Here a series of misfortunes occurred. First an unfortunate mule turned a somersault as it staggered wearily down to the stream and was seriously injured; then a horse got lamed, and was useless for the rest of the journey; all the loads either fell off or shifted so much that the whole caravan had to be re-loaded, with the result that the poor animals did not get into camp until half-past six, thus making a day's march of twelve-and-a-half hours.

Our leader, encumbered with horse and child, slipped among the boulders in the stream and cut his leg, but fortunately the baby escaped uninjured. I myself had the humiliating experience of losing my balance on a slimy rock and falling into the water up to my waist. My horse, greatly to his credit, stopped dead—though I had jerked him forward in my fall—and no harm was done, but the rest of the march was tiring, as my wet skirt, even when wrung out, seemed to weigh many pounds, and after two or three more hours of scrambling up and down, sometimes riding for a space but more often walking, I was thankful to reach the picturesque valley where the night was to be spent, and have some tea. It was not possible to get into dry clothes until the worn-out caravan arrived much later, and it says a good deal for the superb climate of Persia that not even a cold resulted from my involuntary ducking.

Next morning both men and animals were tired with the exertions of the day before, and it was not agreeable to find that we had to negotiate some miles of a long winding gorge, being obliged to splash through the river almost the whole time and pick our way among boulders, all under water. The imposing cliffs, crowned with eremuri and asafœtida, rose up straight from the bed of the river, and it was pleasant when this endless and eerie-looking defile, silent and apparently bereft of all animal life, widened out into a grassy valley, with low hills on either side covered with rich herbage. Our troubles as regards natural obstacles were now at an end, and when we had passed the mud buildings of the Persian Customs we soon emerged into a grass-country with rolling downs. It was a district peopled by Kurds, the big, heavy-looking men wearing huge sheepskin caps, while their women were gay in red and blue garments, fastened with big silver clasps set with cornelians and hung with chains and rows of silver coins.

The black tents of these nomads stood in groups on the banks of the river, near which wandered flocks of black, brown, and cream-coloured sheep and goats, while camels with their shaggy young browsed on the long grass. It seemed quite an earthly paradise in comparison with

the barren country through which we had been travelling, but our servants did not view the prospect of camping here with much favour when they came across a large snake. At once there arose much hubbub and shouting as they flung stones at it, until one braver than the rest jumped upon it vigorously and so despatched it. An old Kurd who witnessed this scene, when anxiously interrogated as to whether there were many such reptiles in the valley, replied that there were legions of them, but that they never did any harm to good Mohammedans!

It was pleasant to see the handsome, vigorous nomad women walking about unveiled, presenting a great contrast to the women of the towns, who are merely awkward-looking black bundles as they shuffle along in heelless slippers. A white face-cloth with a strip of lacework in front of the eyes is the only relief to this sombre costume, and when this is exchanged for a black horsehair veil the effect is quite sinister. The nomad woman is usually the "better half," and it is she who does most of the work, milking the flocks, making cheese, weaving carpets and the black goat's-hair cloth with which the tents are made, and taking an active part in the preparations when the encampment is moved to fresh grazing grounds. Her sister of the towns despises her because of her unveiled face, but regarded from the point of view of an Englishwoman, the nomad has much the best of it.

I have travelled through Persia from north to south, and have always observed that the countrywomen are far happier and healthier-looking than the pallid and often discontented ladies it has been my fortune to meet. These latter are looked upon as mere chattels by their menkind, and can be divorced with such ease that it is a matter of surprise that there is any wedded happiness at all in Persia. If a woman has no sons, her husband will probably dissolve the marriage at an early date, and look out immediately for another wife to replace his first; or if a man of wealth, he may have two or three wives at the same time, his religion permitting him four legal wives and as many illegal as he pleases. The jealousy and heartburning that inevitably ensue when rival wives are in the same house can easily be imagined, and often result in tragic consequences for one of the wives, or even for the husband himself.

We all enjoyed this our last camp, as the weather was perfect, and at night a soft wind blew across the rolling river while the constellations hung like lamps in a vault of sapphire blue. Five o'clock came all too soon next morning, and I for one felt sorry to leave the nomads' tents behind and ride towards the Russian frontier station, for Persia and its free existence have always appealed to me strongly. Our baggage was soon examined and passed, but to our chagrin our leader, to whose skill and care we were indebted for a most successful journey, was not permitted to cross the frontier to see us off at the railway, and it was only

with difficulty that another of our party, going to Batum to visit a dentist, was allowed to proceed, being forced to show the Russians his teeth—or rather his lack of them !

And then those bound for the train said good-bye to those left behind, and the courteous Russian frontier officer lent us his carriage, which was like a low, heavily-built jaunting-car, to convey us to Khakr some miles off. As we drove across the steppe we found ourselves in the land of the

Kurdish Women.

tortoise. Hundreds of these creatures of all sizes crawled about the sand, which was thinly covered with grass and dotted with clumps of a kind of wild pea. The low hills to our right were pitted with holes in which presumably the reptiles had hibernated, and whence they had now emerged, lured by the warmth of the spring sunshine.

At last we arrived at the little garrison town of Khakr, embosomed in trees, and we and our eccentric-looking baggage were deposited at the railway station. A charming Russian lady, who spoke French, helped

us to get our tickets and register our boxes, and when the mid-day train from Merv came in, crowded with Russians who seemed disinclined to make room for us in their *coupés*, this good Samaritan's husband exerted himself on our behalf and secured seats for us. I was in a carriage full of women in muslin dressing-gowns, who were eager to converse with me and extracted all the information that I could convey by means of a small phrase-book. Krasnovodsk, on the Caspian, was reached about noon on the following day, and some twenty hours later our steamer landed us at Baku, where André, the well-known interpreter, met us and saw us off on our thirty-four hours' run to Batum through the Caucasus. The heat was too intense to allow us to appreciate properly the

[H. R. Sykes, Phot.

A Nomad Encampment.

magnificent scenery through which we passed, and, moreover, the line was not over-secure, soldiers with fixed bayonets being on guard at every station and standing at intervals along the rails until the train got up speed. We were told that there had been various bomb outrages, and that armed bandits occasionally held up the train, but we saw nothing of an alarming nature, except perhaps when a villainous-looking character leaped on to the iron steps leading to our corridor carriage, and our burly conductor, standing at the top, hurled him on to the line after a brief but sharp tussle. When we steamed into Batum that evening all the hard part of our journey was over, and it only remained to embark on a Nord-Deutscher-Lloyd steamer, replete with every comfort, which carried us to Marseilles.

The Native African Servant.

By RALPH DURAND.

Everyone has experienced more or less the difficulties of the eternal "servant" problem, a common feature of which is for everyone to believe that the problem presents more difficulties in his own time and in his own country than it does or has done to those of other countries or of earlier generations. An English housewife may envy the African traveller who pays his servants as little as three shillings a month, and can get more or less competent cooks, laundrymen, and other skilled servants for five shillings a month, but there are factors of the servant problem in Africa that take much of the gilt off the gingerbread of low wages. Prominent among these is the extent to which the traveller in the remoter parts of Africa is dependent on his servants. The African traveller who is deserted by his native followers is helpless. Unless he is travelling with the simplicity of poverty to which a succession of robberies reduced Mungo Park, he will certainly have more baggage than he himself can carry, and whether his baggage amounts to a modest four loads or a princely four hundred, like that of the Duke of the Abruzzi, he can no more continue his journey without carriers than a steamer can move without a propeller.

For the sake of illustration we will take the case of a man who from choice or necessity travels as simply as possible, embarking on a journey that will occupy three months in a part of Africa where neither camels, horses, oxen, nor donkeys can be used for transport purposes. His personal servant will carry his roll of bedding, toilet articles, and spare clothes, but unless this luggage is reduced to the smallest possible dimensions another carrier will be required to share the burden. The cook will carry a box containing cooking pots, crockery, and simple table gear. Another man will be needed to carry the tent and tent equipment. The amount of groceries and of flour or biscuit that will be necessary for three months' provisions, together with a certain amount of tinned meat and fish for use when local supplies fail, can scarcely be reduced below four loads. (Fifty pounds' weight is the usual load given to an African carrier, but a load that will diminish daily may at first be slightly more than this.) For the purchase of food for his carriers, as well as fowls and native vegetables with which to supplement his own fare, the traveller must carry at least two loads of cloth, beads, brass wire, soap, axeheads, and other articles for which there is a demand in the country

which he will traverse. It may be as well to include in the caravan a man to do odd jobs—to carry drinking water for the party in districts where this essential commodity is scarce and bad, to carry a reserve of food for the other carriers in thinly populated districts where food is difficult to obtain, to drive a few goats, carry the load of any man who may be ill, and otherwise make himself useful. In sparsely populated districts where food is difficult to obtain, it may be better for the traveller to retain the purchase and distribution of the carriers' food in his own hands, but in districts where foodstuff is cheap and easily obtained, it is less trouble and more satisfactory to issue to each man a weekly " ration " of cloth or other form of local currency with which he may buy food on his own account. In Nyasaland, for example, a carrier will receive every week a square yard of cotton cloth, value about 1½d., in lieu of food, and will be able to feed himself well on that allowance.

It will be seen that for a three months' journey a European travelling in the interior of Africa will scarcely be able to do with less than ten carriers. A man who values his personal comfort will probably take more, but small caravans have the great advantage of entailing far less bother in proportion to their size than do large ones. A small party can easily get supplied with provisions from the surplus stock possessed by the villagers with whom each successive night is passed, but the demand created by a large caravan sends up the price of provisions wherever it goes. For the same reason a small caravan can afford occasionally to take a day's rest, but a large caravan must keep on the move in order to fill its corporate stomach. A man who travels with a large caravan must make special arrangements for food supplies. He may employ men to march along a route parallel to his own, buying provisions at villages through which the main body will not pass, or he may so plan his route that he passes through large villages at which his men may lay in supplies.

Members of a small caravan will probably be drawn from the same village, will understand each other and live together in harmony, but in a large caravan there is bound to be a certain amount of rivalry between members of rival clans or tribes. To maintain order and to apportion the loads fairly so that each man carries his fair share it will be necessary to employ one or more headmen, or capitaos. The choice of a headman is of course of great importance, but capable caravan leaders are by no means difficult to find. Many years before African travel became fashionable, the Arab merchants of the East Coast and the Portuguese merchants of Angola and the Zambezi Valley were in the habit of sending trade caravans in charge of trustworthy slaves into the far interior. There has therefore grown up a class of men who know the principal villages and watering places, the languages spoken, and the temperament of the

Dudley Kidd, Phot.

On the March in Garaland.

[Dudley Kidd, Phot.

A Scene in Tropical Africa (Nyasaland).

natives along many hundreds of miles of caravan route. A headman will buy food, engage carriers, plan out each day's march and decide on a camping place, keep order among the carriers, superintend camping arrangements, act as master of ceremonies when chiefs are visited, and allow none but himself to cheat his master. Such men are only to be found in tribes the members of which are accustomed to travel. For this reason no native of South Africa is fit to conduct a caravan for more than a comparatively short distance. Men sometimes march northwards from the settled districts of South Africa under the guidance of a Griqua, or "Cape-boy." This individual will expect to be paid a large wage, to be fed on luxuries such as coffee, sugar, tinned meat, etc., to which a life of semi-civilization has accustomed him, and will therefore need almost as many carriers as his master himself. He will prove as liable to fever as a European, and he will probably know less about the country to be traversed than his employer. He will therefore prove a useless luxury, north of the Zambezi at any rate, and will soon be exchanged for a headman drawn from one of the tribes to whom travelling and porterage are as congenial as hunting is to a Bushman or cattle-rearing to a Zulu. Chief of these are the Swahili-speaking tribes of the East Coast, members of which can make themselves understood anywhere between the Zambezi and the Sudan, and would think no more of conducting a caravan on a tour round the great Central Africa lakes than a Cook's agent would think of shepherding a party of tourists to Berlin and back.

Though the employment of a headman spares the traveller much worry it has the disadvantage of preventing personal relations between him and his carriers. This would be regarded as an advantage rather than a disadvantage by a man whose chief object is to cover the ground, and who regards his carriers merely as means to this end; but most men travelling in Africa like to know something of the African, and a traveller who leaves himself in his capitao's hands will have little opportunity of getting to know and understand his men. A man who travels with a small caravan and dispenses with the services of a headman will certainly be hoodwinked and cheated until he has gained experience, but he will get to know, and quite possibly to like his servants. Until he has learned to look after himself they will have him at their mercy, and in a subtly humorous way will make the most of their opportunities. They will encourage villagers with whom they pass the night to sell their master rations at exorbitant prices on the understanding that they receive a commission of some sort on the transaction. They will pretend to be prostrate with fatigue, and declare that they cannot continue the journey unless a pig or a goat is bought and slaughtered for their nourishment. If they hear that a beer-drink and dance is to take place at some village quite off the line of march they will contrive to spend the night there, and will tell all

sorts of fantastic lies about flooded roads or dried up wells to account for their leaving the right track. They will almost certainly take an early opportunity of striking for higher pay. Waiting till they have gone a week's journey or so, they will demand that their pay should be doubled and decline to move until this has been promised, and a substantial sum paid on account. If the traveller gives in he is lost, for the men will keep on demanding higher pay. If he had a headman he could retire to his tent with a request to be informed as soon as the carriers were ready to start again, but not having one he must face the music by himself. After some hours' haggling the men will pick up their loads and sullenly resume their march. At this point it is perhaps advisable to be prepared to make some slight concession. A promise might be made, for instance, that each man who behaves himself shall receive a weekly bonus of a tablespoonful of salt. Such an announcement would have an excellent effect. The men would go forward cheerfully instead of sulking, and would feel goodwill towards the man they had failed to browbeat.

A frequent cause of friction between an inexperienced traveller and his carriers is the fear of the former that the latter may desert him, for readiness to abandon his employment is a trait in the African native that complicates the servant problem. The African native is not obliged to work for hire in order to gain a livelihood, for he can always get enough to eat in his own village. It is only the desire to amass capital that drives him into the labour market, and as he has not the spur of necessity to goad him he is apt to throw up any employment that proves uncongenial. This fear often causes a European travelling in Africa for the first time to herd his men together, and insist on their marching just in front of him. This treatment will be resented by the men, who dislike and fear anything that they do not understand ; they will become uneasy and dissatisfied with their work. Misunderstandings easily arise. A carrier often throws down his load and walks off into the bush—perhaps to get a drink, to search for a root whose medicinal properties he values, or to strip a piece of bark with which to bind up his load. If left to himself he will resume his journey when he has done what he wanted to do, and will rejoin the caravan at the next stopping place. If, on the other hand, he is shouted at and compelled to pick up his load and go on without being allowed to do what he wanted to do, he will become sullen and suspicious, and may possibly decide to bolt on the first opportunity, although till that moment he had no idea of doing so. If a man is determined to desert it is practically impossible to stop him. If his master is an active and determined man he may possibly catch the deserter before he has gone far and bring him back to his work with the muzzle of a rifle unpleasantly near his backbone, but a man treated in such a way is almost certain to desert again as soon as night falls.

It is far better for the inexperienced traveller to appear to trust his men, however much he may distrust them in his heart, to lead the caravan and let the men follow at their own pace, to halt occasionally in the shade in order to allow laggards to catch up with their companions. Halts on the march afford the traveller the best opportunity for getting to understand his men. If he is ready to perform small acts of courtesy, such as providing a match for a pipe or giving a pinch of tobacco to a man who has run out of snuff, he will find his men throw off their reserve and chat openly in his presence. He will thus get to understand them, to

A Man who Values his Personal Comfort.

know when they are in a good temper and may be trusted, or when they are sulking and must be watched. Later on he will get to know when they put forward a grievance as a cloak to blackmail and when a grievance is legitimate, when their demands are reasonable and when they are put forward merely in the speculative hope of getting something for nothing.

It will be seen that a man who dispenses with the services of a headman will have no small measure of worry, and that for a large caravan the services of a headman are practically a necessity, but the man who travels

with a small caravan may find that his opportunities of understanding the native will repay him for the worry entailed by having no headman. The African carrier will often show extraordinary loyalty to a master whom he likes. The rate of wages paid to carriers varies greatly in different districts, but a carrier hired where the rate is low will seldom leave a master whom he knows and likes even if he has the opportunity of bettering himself by doing so in a district where rates are high. The writer remembers the case of men hired in Nyasaland at three shillings a month and paid off in Mashonaland, who elected to stay with their

Sometimes the Porters will demand a Pig.

former master at the old rate rather than accept service with a stranger at ten shillings a month.

Taking him all round the African native servant is not a bad fellow. Lazy he is and a bit of a thief, but a patient, good-humoured, kindly-natured rascal in spite of it. He is almost always punctiliously courteous in his manners until discourtesy from Europeans has led him to suppose that the white races do not appreciate good manners, and his anxiety to please his master sometimes leads to unexpected results. An untrained

Kafir servant once brought me a plateful of goat-mutton chops, but had forgotten to provide me with a spoon with which to help myself. Instead of pointing out the omission in words suited to his range of ideas I used the dangerous expedient of sarcasm. "Shall I help myself with my fingers ?" I asked. "No, sir, you'll burn them," he replied, and helped me with his own. He knew that the cook had handled the chops when they were raw. How was he to know that I had a prejudice against their being handled when cooked ?

On another occasion I had among my carriers a man who was always very clean in his personal appearance. He seldom missed an opportunity of washing either his body or his waistcloth. When I once objected to his wiping plates with this garment, he pointed out that it was much cleaner than his dish-cloth. I found him one day washing eggs with soap and water preparatory to boiling them, as he proposed to save trouble by making my tea with the same water in which he boiled the eggs. I protested, and made him boil fresh water, but have often wondered since whether my protest was based on hygienic principles or merely on prejudice.

When once a Kafir servant understands his master's standard of cleanliness he faithfully conforms to it, but he has to learn first what it is. A European in Africa should make allowances, too, for his servant's unfamiliarity with things to the use of which he himself is accustomed. It is as unreasonable to expect him to know without instruction that food must not be boiled in an earthenware teapot or fried in an enamelled toilette basin, and that an axe should not be used as a tin-opener, as it would be to expect him to understand the use of a kitchen range. The same principle applies to other matters. A native chief, who had never seen a donkey in his life before, was once asked to take charge of one of these animals. Fearful lest it should run away, he tied it to a tree and so long as it lived tried to feed it on fish !

The Kafir's fidelity to his instructions is sometimes so great as to be a nuisance. On one occasion I told a man to poach some eggs. There not being any suitable way of translating the word "poach" I went through the pantomimic action of breaking an eggshell and dropping its contents into boiling water. I then directed him to cut some slices of bread and "cook" them with the eggs. He obeyed me too literally. The eggs were excellently poached, but he had boiled the bread in the same water. He was not to blame, however, for the inadequacy of his vocabulary and my lack of ingenuity in explanation. Once I took the same man with me for a short voyage on a Zambezi steamer. The first morning, having no instructions to the contrary, he prepared to make my morning tea by lighting a fire on the deck, and had done considerable damage to its planks before he was discovered.

In regard to honesty the Kafir servant is not so far above blame as to be superhuman. He expects his little perquisites. He helps himself occasionally to his master's salt and sugar. In preparing food he has an eye not only to his master's appetite, but also to the fact that he and his fellow-servants expect a fisttul of whatever leaves the table. This practice may prove expensive in the case of such viands as oatmeal or tinned vegetables imported at considerable cost from Europe, but should be condoned in the case of local produce such as rice, sweet potatoes, or native meal, a pennyworth of which would suffice to feed a dozen men. It is advisable to make a head servant responsible for petty household expenses. He will probably cheat his master in trivial matters, but will allow no one else to do so. Had I always adopted this plan my native neighbours would never have dared to sell me fowls that they had previously stolen out of my own fowl-house!

A European is always an Object of Interest.

Throughout British South Africa Kafir servants have a bad reputation for stupidity and neglect of their duties. The reason is that an Englishman expects a servant to work all day and accomplish a great variety of small duties. A Kafir unfortunately can only attend successfully to one thing at a time. Two concurrent tasks reduce him to the verge of imbecility. He will mind a baby with exemplary care or cook a joint to a turn, but if told to do the two things together both the baby and the joint will be burned. The man that has learned that a Kafir to accomplish a task satisfactorily must be enabled to concentrate his mind on it, and who knows when to be critical and when to shut his eyes, has solved the African form of the domestic servant problem.

Across France in a Motor Car.

By AMY GRETTON.

To realise the full pleasures of motor travel one could not do better than follow our example, and from the quayside at Dieppe watch the long, quite grubby, and decidedly commonplace line of railway carriages and somewhat uncouth locomotive preparing to lumber off in the direction of Paris, with a freight whose destination was, so to speak, wholly subservient to that of the train, and then turn to the smart, clean car standing on the cobblestones a few feet away from the lines, its brass work glittering in the sunshine, its engines throbbing merrily, ready to take us on our own particular journey, a journey to which the charm of a possible uncertainty might be added. Mr. Chesterton may tell us that Bradshaw commemorates the victories of man: that for man, with one wild engine, to strike a distant but predestined town is in itself an epic. Is it not far more epical when man with one wild motor-car strikes a wholly unexpected one?

The luggage was finally fastened into place, road maps were again consulted, the admiring crowd of porters, surrounded by an outer ring of *poissonnières* and loafers, gave way before us, and we were off. The long steep hill out of the town is partly paved with that nightmare of all motorists, *pavé*—the cobblestones which, doubtless from motives of economy, are so dear to the municipal heart abroad. But once we were free from *pavé* and on the top of the hill, the gradual upward slopes along which the main road leads did not appear very formidable. The country was cultivated and evidently well populated. Prosperous looking farmers' and tradesmen's carts, with enormous enveloping black hoods which appeared effectually to prevent their occupants from hearing the most piercing hoot of a motor horn behind them, moved heavily along the middle of the well-kept *route nationale* over which we were skimming. Soon we began to pass agricultural labourers going home after the day's work, and then suddenly, a few miles short of Rouen, we dropped many hundred feet down into the valley of the Seine, and found ourselves entangled in a long series of singularly unattractive manufacturing villages, practically suburbs of Rouen. Through these towns we sadly made our way, the uneven *pavé* shaking the little car with such determination that one wondered how long nuts and human endurance could bear the strain. But custom soon inures, and in a day or two long stretches of *pavé* were received with resignation, and came to be looked upon as minor evils,

provided that they were unaccompanied by a particularly malicious thing known as a *caniveau*, which means a wide, deep, open gutter running in a large-hearted manner straight across the village street.

Next morning found us on a charming southward road, lying under the lee of rocky hills on the left, while on the right the Seine, a pale cold blue in the sunshine, wound with strange twists and turns about the country, with bare, austere poplars outlining the water's edge, their dark skeletons giving a note of clear-cut form to the drab winter fields. But by the afternoon open country and speed were exchanged for weary miles of the *pavé* which surrounds Paris and which, from the motorist's point of view, greatly detracts from the charm of two very interesting towns, St. Germain and Versailles. Once Paris was left behind, however, there was a splendid run over a fine, open, hedgeless road, stretching like a white ribbon far away into the distance with a mathematical precision which strikes the British mind, accustomed to "blind," twisting English roads, with a feeling almost akin to awe. French roads, indeed, have an air of being essentially well-behaved, with their neat big stones to mark the whole kilometre, their neat little stones to mark the tenth of each said kilometre, and again an occasional third stone to tell the traveller that he is on *route nationale* 96 or 143, or whatever it may be—the whole intensely suggestive of roads not, as with us, evolved by time, but plucked from chaos and marshalled into sudden order by a Napoleonic code.

That night we spent at Melun, a cheerful little garrison town south of Paris, putting up at one of its many inns which was recommended—as were all the hotels we stayed at on our tour—by a most invaluable *Annuaire* published by the French Touring Club. These inns one and all put our own provincial hotels to shame ; for one does not usually live very easily in England for the equivalent of twelve francs a day, inclusive of everything, even tips and wine, in hotels provided with, if not baths, at least electric light and hot air. Yet many of the hotels we stayed at were quite off the beaten track, and there appeared to be no one but ourselves occupying any of their numerous rooms. Indeed, one imagines these inns to be entirely supported by the townsmen, who come in every day to lunch and dine in such numbers that one wonders, from the homeless condition that this suggests, whether the provincial Frenchman does not cling to his bachelor state even more closely than does the modern young Englishman.

The primitive little town of Montbard marked for us the beginning of Burgundy, and with it came an immense change in the aspect of the country. The main road through the Cote d'Or ran along wide sweeping valleys, with high, bare, forbidding hills on either side, over steep, snowy passes, through solitudes which one would hardly have believed could exist in a country like France. We passed numberless immense fields

which were obviously tilled; but we could discover few signs of the tillers, and still fewer traces of human habitation. One wonders if the labourers all live herded together in the ugly and very occasional hamlets through which we went, and if they walk a dozen kilometres or more every day to their work. The desolation of this part of the world was one of its most curious features. The fact that one seldom sees anything in the nature of a gentleman's country house, that one does not see gentlefolk walking about the roads and fields, and that one looks almost in vain for the sight of a good "turn-out" with a smart carriage and horses, applies to many parts of France, but the absence of these characteristics of an English countryside seems particularly accentuated in the north of Burgundy. Mile after mile slipped away without the sight of any human beings other than motorists, or possibly a caravanful of the most unlovely-looking gipsies, who appear to swarm on certain of the highways of France to such an extent that outside three-fourths of the villages between Dieppe and Dijon are to be found encampments of these nomadic people, crowded together either in caravans far more squalid than those we see in England, or else in the

Jeanne d'Arc's Prison, Rouen.

most indescribably filthy-looking tents pitched by the side of the road. We came to welcome with positive relief each dull village with its long, straight, cobbled street, its occasional *caniveau*, its nondescript church, its gardenless cottages, its inevitable flock of shrieking hens, courting death with loud cries in front of the car ; it at least showed us that the country was not entirely devoid of a settled population.

The road which skirts that most picturesque river, the Armançon, brought us to Sémur, with its quaint old castle perched high above the

Mediæval Gateway, Joigny.

stream. Later on we reached a charming little town bearing the quaint name of Tonnerre, which was one of our stopping places on the way back from Dijon. Crowned by a fine old church, washed by little streams of water, lapping against the sides of the houses in a manner almost Venetian, the town passes a sleepy existence, sandwiched between two hills in a valley through which the highway runs. Joigny, with its curious mediæval gateway, was another place we came to in the course of our wanderings ; and we lunched one day at Sens, an interesting town which

has a mellow, beautiful Gothic cathedral, close to which an enlightened generation has clapped a white stucco *hôtel de ville*, strongly reminiscent of an unwholesome iced cake.

The same route takes us through famous Fontainebleau—a forest which, still beautiful, now alas contrives, at all events when seen from the main road, to suggest in a subtle way suburbs and Hampstead Heath. As one dashes past the woods, one longs to see in the distant clearings the self-same pictures that Corot and Daubigny saw, but whether or not it is

The River Armancon at Semur.

owing to the trim sand rides on each side of the road, to the careful information posted up everywhere with regard to the trees, or to the admirable indications found at the beginning of each path into the wood, one can only imagine now, at the end of a glade, not a dreamy landscape with shadowy figures and mysterious trees, but a smart little kiosk for coffee, covered with the most concrete form of advertisement and occupied by an excellent *bourgeois* family out for a day's pleasuring in the country.

The forest country of Fontainebleau, the sandy soil and firs of which

between Fontainebleau and Versailles strongly recalled parts of Berkshire, gave place next day to the familiar bare plateaux and wide fields of Seine Inférieure, the road dropping down to the level of the river at Pontoise, then climbing up again towards Beauvais, over the gentle hills which look so charmingly picturesque if seen from a train. They assume a

View of the Keep, Semur.

wholly different aspect when approached by a car whose occupants have become all too well aware that the time limit of a week's delightful tour is drawing to a close, and who, knowing that they are again about to become dependent on a quite irrevocable steamer, starting at an equally irrevocable hour, have a greater regard for speed than for a nicely accidented road.

In the Yosemite Valley.

By F. G. AFLALO.

"The Yosemite Valley is burning, and the National Grove of giant trees is threatened." So ran a telegram to the news agencies in the summer of last year, and back went my thoughts to that delectable valley and those magnificent sequoias to which I had paid willing homage some weeks earlier. Following close on the heels of the devastating fire at Fernie, in British Columbia, this second conflagration was doubly alarming. These colossal forest fires appear to be unavoidable in the vast timber tracts of the American continent. All possible precaution may be taken, so far as it can ever be possible to control such areas with any small and inexpensive force of forest police, but in such summers as those lands enjoy, without a drop of rain for months together, it takes so little to start a blaze, so much to get it under.

Just how much the giant timber of the Mariposa Grove may, apart from popular sentiment, be worth to the United States in general, and to California in particular, I am not in a position to estimate, but judging from the yearly returns of its pilgrims it cannot fall far short of a million dollars annually. In view of this, are a couple of young troopers sufficient protection for so vast a forest? These youths, no doubt, do what they can. They are civil and alert lads, and, as I saw myself, faithfully accompany every coach through the reserve and keep an eye on all stragglers. They are, in fact, sufficient to deter malefactors from cutting their initials on those hallowed trunks, or from carrying away the snow-plants or other rare and valued flowers. When, however, it is a question of controlling an outbreak of fire, at first suspicion of which one of them at any rate would have to gallop off hotfoot to the camp in Yosemite, a distance of over thirty miles, to summon more adequate assistance, the flames must for a time have things their own way, and it does not take many hours for them to get the mastery. It is to be hoped that the recent scare, the first for many years, may have taught the Government a lesson. It has taken over the Grove from the State of California, and the responsibility is a national one. I plead for a better protection of the giant sequoias in no presumptuous spirit, but in a measure everyone who has felt the inspiration of these wonderful trees is entitled to resent any carelessness which might lead to their destruction.

Before visiting them I spent some happy days in the Yosemite Valley, which is reached from Merced, a station on the Southern Pacific

Railroad a few hours' run from San Francisco, by a toy railway which follows every bend of the frolicsome Merced River as far as El Portal, the gateway of the Reservation. Down comes the river through fairy canyons, and the little water-ouzels, tripping over the slippery boulders, took my thoughts back to a sunny afternoon in May twelve years earlier, when Dr. Alfred Russel Wallace, with whom I was having tea at his house in Dorset, begged me to read John Muir's "Mountains of California," and particularly the beautiful description of that gifted author's favourite bird, the water-ouzel. Never perhaps in any language, ancient or modern, was a bird more sympathetically written of, and I little thought, when enjoying Muir's eloquent tribute to his little friend, that I should ever watch it in the very scenes amid which he studied its fascinating ways.

Ten years ago the joy of gazing on the valley from Inspiration Point entailed a dreadful coach ride from the nearest town, seventy miles away, and it is not to be wondered at that many English tourists of an earlier generation gave Yosemite a wide berth. Nowadays, when the locomotive snorts right up to the mouth of the valley, leaving only a dozen miles by coach into the heart of it, there is no excuse for passing by this lovely retreat, and those who do so miss the prettiest spot in all California, if not indeed in all the land. Not that the way to the valley is even now one of roses, for even a dozen miles of coaching along bad and dusty trails is a trial to the fastidious traveller, and if he goes, as go he should, the further thirty and odd miles out to the Big Trees, he will get, in a week of June, particularly after a snowless winter like that of 1907–8, all the dust he wants for years.

Your first introduction to the Yosemite Valley, by way of the Bridal Veil Falls, is so enchanting that you fall in love with it even before the coach sets you down at Camp Ahwahnee, or whatever other destination you may have chosen for your stay. For myself, Camp Ahwahnee, the first stop, looked inviting enough, and there, in a comfortable tent, in sound of the plash of ceaseless waterfalls, and the song of happy birds, I spent a restful week. The rainbow effect of the setting sun on the delicate fabric of the Bridal Veil is, without exception, perhaps the most beautiful vision of the kind in any traveller's note-book, and this, which is but one of many falls, and by no means the highest in the valley, enjoys the largest share of the pilgrim's affections, because it is the first to bid him welcome and the last to speed him on his way when he must once more go forth into the turmoil of the outer world.

There is a charm about every valley. It is the complement of the mountains and reflects their spell. It appeals particularly to lazy men. I love valleys, and could spend weeks lying in them and looking up at summits that I have not the least ambition to scale. In the Yosemite, as

The Yosemite Falls.

Mirror Lake.

elsewhere, I did no climbing, not even on the ample back of a mountain mule, but found the ground floor of the valley, itself four thousand feet above the ocean, beautiful enough without crawling after the eagles. Over a sandy foundation it runs riotously green beside the winding river, and bids you rest in alluring meadows, rare indeed in so arid a region as California.

The trees throughout the valley are chiefly conifers, which out at Wawona break all the world's records, but other kinds mark the course of the Merced, and there is luxuriant undergrowth bright with many-coloured berries in the tangled thickets off the high road. For height, the waterfalls are among the finest in the world, though as compared with Niagara their volume is insignificant. While Niagara sends its ten million gallons of water every second over only a hundred and fifty feet of rock, the little cascades of Yosemite tumble, with subdued voices, over thousands. The Ribbon Fall, the highest of them all, comes sheer down 3,300 feet, and the Yosemite Falls, in their three leaps, cover 2,600 feet, drenching you with spray a hundred yards away. Even the lovely Bridal Veil, which does not depend on altitude for its attractiveness, tumbles not far short of a thousand feet, and adds its soothing whisper to the voices of the valley.

The early morning is the witching hour when you should have a horse brought round to your tent and gallop out to Mirror Lake, or some other loveliness within easy reach. I have ridden mountain horses in other continents, though never before with the high-peaked Mexican saddle. This peak, which is used for carrying the lasso, was a constant terror to me, for it made riding a nightmare, with a sword of Damocles ever poised for an upward cut. The mountain hireling is admirable on trails, along which he proceeds at a walk, surefooted and reliable. Over the flat he is not exhilarating. If he gallops for a hundred yards, or canters for two hundred, he thinks that he has done all that can reasonably be asked of him, and falls back into his favourite walk. Still, he is undoubtedly safer for the majority of American tourists. There has been a good deal in print about the high standard of riding in the States, but the tourists you meet at resorts like the Yosemite affect a restful style of horsemanship to which hill ponies are admirably adapted.

It was pleasant to live once more in camp, even under the somewhat artificial conditions which made life comfortable. My last camp, with the exception of a few nights spent on a lonely islet in the Atlantic, not far from Madeira, was pitched in the higher Atlas. That was the real thing, with native servants, prowling thieves from neighbouring villages, and all the other minor discomforts incidental to this romantic style of life. The genuine camping life owes not a little of its glamour to the enthusiasm of travellers who describe it after they return home. In the monotonous

luxury of cities they forget the drawbacks and recall only the freedom, the "fun" of impromptu meals, the diversion of visits from interesting and picturesque natives, the charm of continual change of residence. They forget that the meals are mostly garbage, and the picturesque natives thieves. They omit to mention that if you camp near water you get mosquitoes, and that if you camp away from it you are overrun with ants.

Our American friends leave the real thing to schoolboy fiction, and stage-manage their holiday camps in agreeable imitation of it, with none of the drawbacks. Ahwahnee is just such a comfortable make-believe. In your tent there is electric light, and an electric bell which you press when you want ice or boiling water. Within easy reach is a hot or cold bath. There is a cheerful writing-room, and there is a spacious dining-room. Every day there is one post in and another out, and there is telegraphic connection with the outer world. In the evening the brave and the fair foregather round a huge camp fire for the exchange of fiction under the pleasing guise of reminiscence, an exercise in which Americans avowedly excel most other nations.

It was during my week in the Yosemite that I drove out for the night to Wawona to see the biggest trees on earth. They lie more than thirty miles away from the valley, and the drive by coach is both tiring and expensive, though as the coaching company has to keep up an immense staff and stable the charge can hardly be called excessive. All the same, I have heard even American tourists grumble at it, and as a rule they are happy only when overcharged. The sight of enormous trees would not in the ordinary way attract me, but I felt that to come so far without paying them a visit would be an unpardonable eccentricity even in one who commonly fights shy of the "lions" of the guide book. One afternoon, therefore, found me on the back seat of a coach, where I was soon so completely wrapped in dust as to be oblivious of scenery and everything else worth living for. Some of the men who drive these coaches are characters. One was capital company. I sat next to him on the return journey, and found him courteous and well-informed, a patriotic American, but by no means a bigot. Another proved himself an "acrimonious and surly republican," as somebody said of somebody else, and with the perspective of the gutter mistook insolence for independence, fearful of being civil lest he should appear servile. This is a not uncommon attitude with Americans of his class, but I never before or since met a more offensive case.

After a quiet night at the Wawona Hotel I set out next morning by coach to do the remaining distance to the trees. Trees, even the biggest and oldest of them (and these are by far the oldest living creatures on this earth), have not, as a rule, appealed to me for their own sake ; but from

these hoary giants, contemporaries of the respectable dinotherium, which were bathing their leaves five thousand years ago in the sunshine of an unnamed California, only the veriest Vandal could withhold his tribute of reverence. If the lifeless majesty of the mountains makes man realise his littleness, what tremendous sensations does he not feel in presence of these wondrous trees, which, even with the heart burnt out of them, even with carriage drives cut clean through their trunks, live on and still feel the sap coursing through their aged veins.

Their discoverer, Galen Clark, who was a year old when Napoleon's empire fell at Waterloo, is still living. I found him one afternoon seated in the shady porch of his little cottage in the Yosemite Valley, peering through his spectacles at a newspaper. I got him to talk of his beloved trees, and the old eyes kindled over the only topic in all the world which interests this Georgian relic. Over half a century ago a consumptive, regarded as incurable, he came to California and lived the open life with the Indians. It was in the course of a hunting expedition that, quite accidentally, he stumbled on the amazing secret of Mari-

Bridal Veil Falls.

Glacier Point.

posa, and for many years he was the recognised guardian of the grove. He still cherishes for the sequoias a devotion passing the love of man, and is proud to have seen them pass from oblivion to honour, jealously protected by the Government, guarded by patrols of cavalry, visited by travellers from every land, and recognised in picture and in word as among the wonders of the world. I wish that he might not also see their hallowed trunks defaced by enormous labels naming them after States, soldiers, and other wholly inappropriate sponsors. I would as soon see a label hung around the neck of the Venus of Milo. Having far exceeded the spell allotted to the sons of men, and having seen his beloved *protégés* in safe hands, he does not care how soon he passes from that valley to the Valley of Death, and lies in the grave dug by his own hands at the foot of the Yosemite Falls. When his time comes California will mourn the last of the pioneers.

Every grand sight of earth is worth the winning, and Nature's masterpieces must be sought in the wilderness and not at the city

gates. Though all roads lead to Rome, there is but one to Mariposa, and one could wish that the Romans had built it. Still, if the road is hard, these vegetable relics of the tertiary are worth its discomfort. More or less cheerfully, therefore, the cheerfulness dwindling hour by hour, the pilgrim does the two-and-thirty miles' drive out from the valley, over dreadful gradients and shocking roads. The only solace of such roads is that they keep the reek of petrol out of Yosemite, and that alone is something to return thanks for.

For our audience of the forest monarchs we are gradually prepared in an ante-chamber of lesser satellities. For a mile or two we drive through serried ranks of pine, fir, balsam, and cedar, which, dwarfed by no grander majesty, appear to be the appointed objects of our arduous quest, for their trunks must taper a hundred feet and more to the blue sky. Then comes something that makes everyone on the coach hold his breath. The stage draws up before the looming form of "Grizzly Giant," who measures a hundred feet round the base and stands in a clearing, better lighted than most of his peers. Sadly treated by the winds and snows of tens of centuries, scarred by the tongues of forest fires, the work of careless man or silent lightning, the gnarled veteran still defies the hand of time. There are taller trees by far in the grove. There is the "Wawona" (Oh, those labels !) 260 feet high, through which we drive our team of four, with room to spare on either side. There is one other at least which tops "Wawona" by twenty feet. Yet somehow "Grizzly Giant," standing alone, gives the lasting impression of them all. Another sensation, in different perspective, is that of walking up the sloping trunk of "Fallen Monarch," an inclined plane 285 feet long, and there is something saddening about this tree corpse prone on its open grave of pine needles.

The giant sequoias impressed me vividly, yet I doubt whether a fuller appreciation of the silent wonder of them would not come with subsequent visits. At first sight you do not get over the sense of monotony inalienable from any great tract planted wholly with conifers. Whether we know them amid the great snows of Switzerland, or in the sandy parts of Hampshire, their unfailing verdure is apt to pall in the absence of deciduous trees which, with the passing seasons, cast and renew their raiment like snakes in springtime. Their resinous scent lacks the blended bouquet of more varied woodlands. Their evergreen groves lack the choir of "Love's Meinie." The Grove of Mariposa is also waterless, a blot on many a fair landscape in California. Yet, for all its imperfections, for all its arduous approaches, for all my woeful ignorance of plant life, I would not for much have missed the sight of these splendid trees. That they happen to be the tallest trees, the oldest trees, the most famous trees in the world is nowise the measure of my appreciation, for I lack the soul for record-breaking. My joy was rather that, looking up at them

I was in the Presence. I felt minded to remove my shoes. It was as if we all stood in the dim nave of some ancient cathedral reared ages before man worried the earth. I uncovered in their cold shadow as before the Holy of Holies.

Back to Yosemite I coached the same afternoon, nothing loth to be at rest once more in that sweet valley, in which, had I not been the slave of time, I would gladly have droned away a summer month. The guide book says that to "do" Yosemite without making the Glacier Point trip is like seeing Rome without St. Peter's. I hate guide books as bitterly as the old gentleman in "Guy Livingstone." Therefore I left out the Glacier Point, and contented myself with buying the photograph, reproduced on an earlier page, of a proud gentleman waving a handkerchief from the overhanging platform at its summit. I loafed instead through an idle week by the riverside, dreaming away my days on a carpet of iris and Indian paintbrush, dozing with the love songs of hiding birds and the murmur of hurrying waters for my lullaby, and with the soothing scent of laurel and of lilac in my nostrils. So still I lay at times that little squirrels and busy ants climbed over me, a Gulliver among the Lilliputians. A rare access of energy was satisfied by a ride out to the Falls. Then, when darkness fell swiftly on the valley, we would foregather round the blazing log fire and enjoy its feast of harmony and personal fiction. No one with a day or two to spare at San Francisco should miss seeing the Yosemite. The guide book, with unconscious paradox, says that no one can "afford" to do so. Seeing that a week's visit cannot cost him much less than fifteen pounds, including the trees, such counsel smacks of Mr. Chesterton. All the same, the advice is sound enough.

A Memory of Yosemite.

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Taking a Sledge over a Pressure-Ridge.

TRAVEL-LITERATURE

Conquering the Arctic Ice.*

CHIEF of the fascinating goals of human endeavour is the North Pole, with its legendary continents, its round-eyed monsters, and its strange ice-drifts. Year after year its white battlements are challenged by fur-clad champions, and the story of its perils and wonders forms the theme—not of bards—but of mariners who, but for its weird inspiration, might never have ventured upon the slippery paths of literary achievement. That these rude hands have generally wielded the pen effectively, and even elegantly, cannot be denied. There is a virility, and at times a pathos, about their narratives which makes a wide appeal to human sympathy.

New books of this class are assured of a hearty welcome. Captain Mikkelsen's book is first in the field for the New Year, and it may confidently be stated that in sustained interest and picturesqueness of detail it will not easily be surpassed. The expedition described in "Conquering the Arctic Ice" had two organizers and two chiefs. Captain Mikkelsen and Mr. Leffingwell solved the problem of joint command as few men could have solved it. The relations that existed between them stood well the test of protracted initial delays, of financial embarrassments, and of a long fatiguing journey. To pull together in prosperity is not difficult, but it is granted to few joint commanders after a long series of misfortunes to be able to write, as Captain Mikkelsen writes: "I think I can safely say that we could have gone through one more winter and come out even better friends than we went in."

Most Polar expeditions are delayed through want of funds, and Captain Mikkelsen's was no exception. The amount of money required was not large, the total amount paid out being £5,450, which he tells us was considerably above the original calculations; of this sum Mr. Leffingwell contributed £2,066. When one considers the enormous sums that have been spent by previous expeditions, and their small results, I think we may congratulate Captain Mikkelsen and Mr. Leffingwell and say that the money was well spent. This could not have been the case without the fine manly perseverance and indomitable courage which the book shows throughout. The journey up the coast of Alaska was a particularly toilsome one, with fogs and gales to fight against. Ice was met with about August 1st, and the explorers did not succeed in reaching Point Barrow before August 19th. This might have been expected in a sailing ship. After a forced delay of twenty-one days, Captain Cottle tried to tow the ship, and helped them considerably. Captain

* Conquering the Arctic Ice. By Einar Mikkelsen. Illustrations and Maps. London: William Heinemann, 1909. 20s. net.

Mikkelsen thinks they could have got to Herschel Island or even Cape Bathurst, but he considered Flaxman Island a suitable place to winter in, as he expected to carry out the scientific exploration of the Beaufort Sea better to the north of that island.

After getting into winter quarters the explorers made themselves known to the Eskimo. In Captain Mikkelsen's description of these people there is nothing new, but there are some unsavoury matters referred to regarding the customs of the natives and the whalers' intercourse with them, which in my opinion it would have been better to omit. Mr. Leffingwell's journey to Herschel Island was a test of the diet necessary for men and dogs. He took five weeks over it, losing several dogs, a misfortune which seems to have hampered their journeys all through. Captain Mikkelsen has his own ideas about dog driving. He says : " Driving dogs is an art " ; this I agree with, but I know few white men capable of learning the art. He goes on to say : " Dogs must be driven with a whip " ; this I entirely disagree with. I never saw an Eskimo carry a whip. The chapter on equipment is very interesting, and the smallest items are well noticed. This account must prove most valuable to future explorers, based as it is on the test of hard experience. The tents used by the party are evidently good for the work, but I think a perfectly round tent would probably have proved even better since the wind cannot strike it in any particular place. The cover, too, should be in several pieces, each of which can be well shaken before it is put on the sledge. The remarks about clothing are good.

The detailed account in Chapter VI. of " The Voyage over the Pack Ice " is delightful. Captain Mikkelsen says : " It looked as if floes about one or two feet thick had been formed between two large bodies of ice and had been crushed into fragments by heavy pressure. Afterwards the pieces had frozen together, the floes had opened again as new sheets of ice had been formed, then crushed again, and as this process had been constantly repeated during the whole winter, the belt of rugged ice fragments had grown wider." As early as March 20th he says : " The sun is getting high, and will soon make the snow soft and the days so warm that young ice cannot be formed in the newly-opened lanes." Going out they found themselves drifting north when in forty-eight fathoms of water, and on their return they experienced the same drift when in fifty fathoms ; but in the deeper water they drifted west. The greatest depth found was three hundred and forty fathoms without bottom, and Captain Mikkelsen writes : " These wonders of Beaufort Sea, this characteristic Beaufort Sea ice, these floes, which must be so immensely old in order to have acquired their dimensions, the thickness which some of this old ice has—how can they be explained but by the presence of land which keeps them year after year in Beaufort Sea ? We view the question from all sides, but are forced to give it up ; the ice speaks for the existence of land, but the narrow Continental Shelf for the non-existence." Mr. Heinemann, in a note at the beginning of the book, says : " The expedition established the fact that no land exists north of Alaska." After reading the book I do not think that Captain Mikkelsen will agree with his publisher, and I certainly cannot.

The sledge party were delayed much more on their return journey by open

water, and the raft which is described is a useful addition to our Arctic resources. Upon their return after a most heroic effort, it was sad indeed for them to find the *Duchess of Bedford* full of water and everything removed to the shore. The sledges and the dogs were unfit for the journey, but the men seem to have suffered little. I have seen dogs die in the same way, but it has been through hard work and starvation ; perhaps this may have been the case with Captain Mikkelsen's dogs, since these animals want very careful watching when they are fed, otherwise the fastest eaters will devour their own ration and that of their companions too. For this reason, when I was in Arctic Canada, we generally fed our dogs in harness when travelling. With regard to Captain Mikkelsen's sledges, they were either too frail for the work or else of the wrong kind. I believe that strong toboggan sledges would have stood the journey without breakage.

The results of the expedition may be said to have fully justified the zeal of its promoters. It did not solve any Arctic problems completely (no Arctic expedition does), but it added valuable contributions to the stock of knowledge which is slowly and surely leading to their solution. Captain Mikkelsen would be the right person to put beyond doubt the question of the existence or non-existence of deep water off the Alaskan coast. Properly equipped, and with his previous experience to guide him, he might be safely entrusted with the further prosecution of these investigations. If such is his own intention, we may hope that he will not be crippled by want of financial support. His present book is a testimony to a magnificent effort made under great difficulties and at great sacrifices, and Mr. Leffingwell's account of the scientific work done, which we are told is to follow, will be looked for with the keenest interest.

ALFRED H. HARRISON.

A Wandering Critic in South America.

WITH the decline of the epistolary art the practice of gathering together letters written home from abroad and presenting them to the public as a book of travels has largely gone out of fashion. When well written such letters possess an undeniable charm. They have about them an atmosphere of human interest and a vividness of impression that are sometimes lacking from a subsequent and more reflective narrative. On the other hand, they express the mood of the moment and often embody hasty judgments. The letters which Mr. C. D. Mackellar has brought together in *A Pleasure Pilgrim in South America* (John Murray ; 15s. net) illustrate both the advantages and disadvantages of books written in this way. The first letter is dated from Colon, Panama, early in September, 1904, and the last, which comes nearly four hundred pages later, from Southampton at the beginning of March, 1905. In the intervening six months Mr. Mackellar had passed down the Pacific coast of South America touching at the principal ports and journeying inland to Quito, Oroya, Cuzco, and round by Lake Titicaca to Antofagasta. Passing through the Straits of Magellan, he touched at the Falkland Islands, Buenos Aires, Rio de Janeiro, Bahia, Pernambuco, and thence home.

Mr. Mackellar has avoided writing anything in the nature of a glorified guide-

book. At times he branches off into interesting historical excursions, but in the main his letters are taken up with a record of personal experiences and impressions, and these are always graphic and sometimes entertaining, though the humour is of rather a caustic character. Mr. Mackellar is one of those ardent patriots whose zeal for the British flag and the maintenance of British prestige is only excelled by his wonder how either one or the other survives in face of Governments at home that are always the slowest, blindest, and crassest imaginable. Indeed, few of his countrymen appear to come up to Mr. Mackellar's standard of Imperialism. Writing from Antofagasta, he says : " Mr. Bosman, the South African I had seen on the railway, came down to dine at my table one night, and again I was struck by his manly, frank, open appearance and manner—so like the real men you meet in out-of-the-way parts of Australia, or other parts of Greater Britain. They do not exist now in the British Isles—all the best blood goes away. What is happening to the land ? "

Elsewhere Mr. Mackellar writes : " The flabby indifference to anything but their own very trifling interests of the British in South America is unpleasing, and makes one impatient " ; while as for South America itself, while he thinks there are excellent possibilities of development he is continually railing at the present conditions. It is therefore not surprising that Mr. Mackellar sometimes found it " difficult to avoid treading on corns." When he was at Lima he met some English people one day at tea at the Legation. " Unhappily I got talking about Payta, or one of the dreadful coast places, saying it must be terrible to live there—they (some of the people he was talking to) lived there, and thought it a paradise. Despite warning looks from my hostess, in my endeavours to leave that paradise, I enlarged on the dreary ugliness of the coast generally. ' It is considered by good judges quite beautiful in form and colour," I was answered. So, leaving the coast, I hastily embarked on a South American coast steamboat—only to find I was talking to the agent ! ' Anyway,' he said, ' you must acknowledge that the South American cooking is splendid.' After that I said no more."

But if the book is often irritating by reason of the querulous criticisms and conscious superiority of the author, allowance must be made for Mr. Mackellar's state of health. He was plagued with insomnia, and while journeying at high altitudes in Bolivia he suffered severely from heart trouble. It is an ironical comment on the title of his book that in a note interpolated in a letter written from Oruro he says : " From this journey and occurrence I date that dreadful evil which racks my spine, and has doomed me to so much present and future mental and bodily suffering." There are many indications, however, that Mr. Mackellar's bark is worse than his bite, and one gets glimpses of numerous little acts of kindness that he performed. He is an excellent *raconteur*, and the book makes the reverse of dull reading. Here is a passage describing the celebration of Independence Day at Guayaquil, the capital of Ecuador.

" The fire brigades are *the* feature of Guayaquil, where fires are of almost nightly occurrence, and everybody seems to belong to them. All wear gorgeous uniforms, and the ' Commander-in-Chief ' and his A.D.C. wore plumed cocked hats, gold-laced coats, decorations, swords, and white trousers with gold braid, and were mounted on prancing steeds. The beautiful (to look at) engines were

all scarlet and gold, wreathed in flags and flowers, and all—for three days—were hauled and pushed about the streets with no apparent object. Unless the river is at full tide there is no water, hence though you fell over the fire hoses in every direction no water did you see. Then there were no horses to draw the engines. I suggested that the General and his A.D.C. should give up their horses to draw the engine, but that horrified them. Once under my balcony a big block of stone was displaced from the pavement and the wheels of the engine were jammed against it, yet on no thought of moving it. Hundreds hauled in front, hundreds pushed behind, great was the excitement. The General pranced about on horseback, waved his sword, delivered orations, but the engine would not budge. My balcony being low, I leant over it speechless nearly with laughter, and forgetting in the excitement they would not understand English, kept calling to them to move the stone, and pointing to it—they could not see it, but they obeyed all my gestures, and all hot, panting, and excited rushed about, looking up at me to see what I meant. It really was the funniest thing ; and when I realised how I had interfered, I laughed till the tears were in my eyes, yet no one seemed at all to mind, they were so excited. In the end they left the stone and the engine there ; they are still there, and may remain there for ever—it would not be improbable."

The book is illustrated with between thirty and forty full-page reproductions of photographs, and a good-sized map at the end shows the author's route.

A Month in Desert Ways.

There are some men who will spend a lifetime in distant lands, and at the end see nothing in their experiences worth writing about. Dr. William T. Hornaday is not of that order. He has managed to write a book—and quite a long and lively book—about an expedition which from the time it left Tucson, the capital of Arizona, to the time it returned to the Southern Pacific Railway at Gila Bend, lasted just a month—November, 1907. At the head of the party was Dr. Daniel Trembly MacDougal, director of the Department of Botanical Research of the Carnegie Institute of Washington, with headquarters at the Desert Botanical Laboratory, Tucson. Dr. Hornaday went as zoologist and taxidermist, and the members of the expedition also included Mr. J. M. Phillips, Pennsylvania State Game Commissioner, who was photographer-in-chief, and Mr. Godfrey Sykes, a civil engineer, who is assistant at the Desert Botanical Laboratory, and who acted as geographer. The programme of the expedition was to cross the desert from Tucson to Sonoyta, just inside the Mexican frontier, and thence explore the practically unknown country round the extinct volcano, or group of volcanoes, known as Pinacate.

This programme was duly carried out, and in *Camp Fires on Desert and Lava* (T. Werner Laurie ; 16s. net) Dr. Hornaday describes the experiences of the party in great detail, and with a breeziness of style which is typically American —or passes as such over here. We make the reservation because the surprised and admiring manner in which Dr. Hornaday refers to the good qualities of Mr. Sykes, the only English member of the party, " but not at all of the comic paper type," affords warning that the people of one country may harbour

rather curious ideas about the national characteristics of other peoples. The fare provided by Dr. Hornaday for his readers is light and easily digested, and may be recommended to those who do not like a too solid diet. If there is nothing particularly exciting, all is eminently readable. Just within the Mexican frontier the expedition came across one of a party of five Japanese who had been persisting in attempts to traverse the Devil's Road across the desert from Sonoyta to the Colorado River, though in no way properly equipped for such an undertaking. Three wandered off the trail and were not heard of again ; of the remaining two, one fell ill, and it was to solicit help for him that his companion approached the expedition.

Any suggestion that these Japanese wanted to slip across the frontier in order merely to reach a field of quiet, honest labour is scouted by Dr. Hornaday as "unadulterated nonsense." In view of the length and nature of the frontier it is not a very difficult matter for individuals who will pick their opportunity and follow the line of least resistance to get into the United States from Mexico without detection. "It is my belief," says Dr. Hornaday, "that those five innocent-seeming Japanese represented a deliberate purpose on the part of the Japanese Government. I think their purpose was to ascertain by trial whether the Camina del Diablo is a practicable route for men on foot who are poorly equipped ! I think those men were trying to demonstrate that it is possible for the little brown men of Japan to travel from Altar to Sonoyta and Yuma with practically 'no outfit' whatever ; and if it were susceptible of proof, I would willingly wager that a full report of that attempt is at this moment in the hands of the Japanese Bureau of Intelligence at Tokio."

In the volcanic region of Pinacate the expedition came across some very deep craters. "The Wonder of wonders was reserved for the last. . . . . I thought that the descriptions of the two excitable members had prepared my mind for the Sykes Crater, but I was wrong on both counts. No man—unless it be one who is thoroughly crater-wise—can absorb from any man's description or from any picture an adequate conception of that abyss. You seem to stand at the Gateway to the Hereafter. The hole in the earth is so vast, and its bottom is so far away, it looks as if it might go down to the centre of the earth. The walls go down so straight and so smooth that at one point only can man or mountain sheep descend or climb out. . . . . The Washington Monument is 555 feet high. Imagine a round hole, wider than the length of Battery Park, New York, going down so far that with the monument standing on its floor you would have to look down two hundred feet further in order to see the aluminium cap on the apex."

Apart from stray references throughout the book, three chapters at the end are devoted to notes on the animal life of the country traversed. There are two full-page original maps drawn by Mr. Sykes, which make it easy to follow the course of the journey, and a large number of illustrations, eight of them coloured, including a frontispiece in which the colouring is more vivid than beautiful, though in others a pleasing effect has been obtained.

[John Thomson, Phot.

Dr. M. A. Stein.

Dr. Stein's Expedition.

Since his arrival in England towards the end of January Dr. M. A. Stein has been busy at Oxford making arrangements for the examination of the remarkable archæological collections which he has brought back from his last great expedition to Central Asia. These collections, Dr. Stein has been good enough to inform us, fill close on a hundred cases as heavy as ponies and yaks could carry across the Kwen Lun and Karakoram passes. Dr. Stein's letters written during the course of his expedition have already afforded fascinating glimpses of the wonderful stories about a dead and buried past to which his researches in the deserts of

Chinese Turkestan have provided the key. But the most important part of his work, a part which will give permanent value to all that has gone before, namely, the classification and interpretation of his collections, has still to be performed, and will probably extend over two or three years. Geographically the surveys carried out by the expedition form an important supplement to Dr. Stein's archæological labours. How extensive was the field covered during the two and a-half years of Dr. Stein's absence from India may be gathered from the fact that the maps embodying the results of the surveys, which are now in preparation at the Indian Trigonometrical Survey Office at Dehra Dun, will consist of over one hundred and thirty sheets of the standard "degree" size on the scale of four miles to the inch. During the first part of his expedition Dr. Stein had the assistance of Rai Sahib Ram Singh, whose services as native surveyor on several of the most important expeditions in Tibet and Chinese Turkestan during the past decade were recognised by the Royal Geographical Society last year, when he was awarded by the Council the Cuthbert Peek Grant. Surveyor Lal Singh, whose services Dr. Stein enjoyed during the last year of his expedition, and who, like Ram Singh, has had considerable experience in connection with other exploring enterprises, also received recognition of his admirable work in the Indian

Talbot Car in the Heart of Australia. (See p. 261.)

New Year's Honours List, in which the title was bestowed on him of Rai Bahadur. We are happy to learn that the last wound on Dr. Stein's right foot, of which the toes had to be amputated on his arrival in Leh owing to frost-bite, healed during his voyage home, and that he is now able to walk without assistance for short distances.

Dr. Sven Hedin in England.

The special meeting of the Royal Geographical Society before which Dr. Hedin lectured on February 8th was a most successful and brilliant function. Dr. Hedin was accorded a great reception, and his work was spoken of in the highest terms, not only by Lord Morley of Blackburn, who, as Secretary of State for India, proposed a vote of thanks to the explorer, but by the President of the Society, Major Leonard Darwin, and by Colonel Sir Henry Trotter. It is, indeed, in no unfriendly spirit that the results of Dr. Hedin's expedition have been discussed in this country, and we may hope that the opportunities for the exchange of personal explanations afforded by his visit to England will suffice to settle any incipient controversy. There is really no dispute about the substantial facts, and the question really resolves itself into one of terminological exactitude. Already, it would appear, matters have been set right regarding Dr. Hedin's visit to the main source of the Brahmaputra. In his lecture, Dr. Hedin, with perfect fairness to his predecessors, made it clear that there was here no great discovery, but that what he did was to ascend the stream that had previously been seen from a distance by British explorers (notably by the survey party under Captain Rawling and Major Ryder in 1904), and had been recognised as the main branch of the Brahmaputra. As regards the region north of the Brahmaputra, no one wishes to take away from Dr. Hedin the credit for having thrown much new light on the mountain system which he has called the Trans-Himalayas, and for having explored considerable areas hitherto represented on the maps by white spaces. Whether these explorations amount to the discovery of the Trans-Himalayan system, or should not rather be described as the discovery of its extended width from north to south, and its functions as a great water parting, is, after all, no more than a question of the use of terms. Admittedly Dr. Hedin has done magnificent work as a pioneer, and in matters of this kind account must be taken of his enthusiastic nature. He has the faculty of being so enraptured with the work of whatever expedition he happens to be engaged on that it always appears to him infinitely more wonderful and important than anything he has done before. This habit of the explorer's of looking at the immediate prospect through magnifying glasses may sometimes excite a smile, but it does not detract from the real value of his work. Major Darwin summed the matter up in a nutshell when he said at the Queen's Hall that one does not judge a man like Dr. Hedin on small points but on the great bulk of his achievements, which are nowhere more admired than in this country.

New Expedition to Arabia.

Writing from Beirut on January 23rd, Mr. Douglas Carruthers informed us that he was starting immediately on a journey into Central Arabia. Mr. Carruthers is an experienced naturalist, and has devoted special attention to the study of ornithology. He was a

member of the British Museum expedition to Ruwenzori, and has since accompanied Mr. W. Rickmer Rickmers on some of his journeys in the mountainous country around Samarkand. His present plans are to start from Ma'an, south of Damascus, with three camels and a few men, and journey east to Jauf. From there he will seek to reach Teima by a new route across the high dune region of wasted sandstone known as the Great Nafud, afterwards proceeding to Hail. The latter oasis has not been visited by more than about half-a-dozen European explorers—Wallin, the Swede, in 1845; Palgrave, in 1862; Guarmani, a Levantine Italian, who was commissioned to purchase horses for the Emperor Napoleon III., in 1864; Huber, in 1878, and again in company with Euting, in 1883; Doughty, in 1876; and Nolde, in 1893. Nolde estimated the population at about 10,000, and if Mr. Carruthers succeeds in reaching the oasis, it will be interesting to learn of the changes that have taken place during the past sixteen years. After arriving at Hail, Mr. Carruthers' movements will be governed by circumstances. If he is unable to proceed further he expects to be back in two or three months' time. His object is chiefly to form natural history collections and enjoy some sport, in the course of which he hopes to secure a specimen of the rare Arabian oryx. He also hopes to add to geographical knowledge of the country traversed.

New Expedition to Lake Ngami.

Mr. R. B. Woosnam and the Hon. Gerald Legge left England at the beginning of February on a private expedition initiated by Mr. W. R. Ogilvie-Grant to study the fauna of the Lake Ngami region, in the north-west of the Bechuanaland Protectorate. From Cape Town they will journey by rail to Vryburg, near which Mr. R. E. Dent, who, like Mr. Legge, served under Mr. Woosnam on the British Museum expedition to Ruwenzori, has a large ranch. Here arrangements will be made for a long trek northwards across the Kalahari Desert to the Lake Ngami region. For some years the lake-bed itself has been virtually a dry expanse of reeds, but the expedition hopes to be able to determine whether the fishes in this part of Africa—which have never been properly reported on—are the same as in the other African lake regions. Collections will also be made of the animal and bird life, and after leaving the lake area the expedition proposes to work the high forest lands to the north.

Expedition to Dutch New Guinea.

The organisation of the expedition to Dutch New Guinea, which has been decided on in celebration of the jubilee of the British Ornithologists' Union, is making steady progress. As was stated in our January number, Mr. Walter Goodfellow will act as leader, and the services have now been secured of two other well-known naturalists, Mr. W. Stalker, who has had considerable experience in New Guinea, and Mr. A. F. R. Wollaston, the medical officer of the Ruwenzori expedition. The advisability of attaching an experienced surveyor to the expedition is receiving attention, and it is also proposed, if funds permit, to add to the staff a trained orchid-collector. Mr. Stalker left England early in February for the Aru Islands, south of Dutch New Guinea, to collect Paradise birds for Sir William Ingram, and will afterwards proceed to the neighbouring Kei Islands to collect and make preliminary arrangements for the main expedition.

TOURIST·TRAVEL

New French Customs Regulations.

Some very stringent Customs regulations recently issued by the French Government have struck dismay into the minds of most male travellers in France. Hitherto such passengers have been allowed, duty free, thirty cigars, or fifty cigarettes, or three-and-a-half ounces of tobacco. Indeed, the supply "sufficient for the journey" was interpreted very fairly and even liberally ; while in practice a box of fifty cigars or a hundred cigarettes, if opened, was usually winked at. Now, however, the smoker's supply is cut down to ten cigars or thirty cigarettes. The new regulations seem rather vexatious in view of the fact that the Customs duties are primarily aimed at the trader rather than the private consumer, and the liberal concessions formerly allowed were based on the assumption that the goods were for the passengers' own consumption, and not carried for purposes of trade. Perhaps this privilege has been abused, unless the real explanation is that the French have become more greedy for revenue.

Golf at Mentone.

Mentone has at length become alive to the great necessity of the age so far as English winter residents are concerned, and a good stretch of country at Sospel, on the road between Mentone and the Col di Tenda, has been definitely acquired for a golf course. It has only been want of communications that has delayed the project, which has been in the air for some years. Now that the electric trams are being extended to Sospel there is every likelihood that by next season a nine-hole course at least will be completed in this beautiful region.

Montreux Hotel Census.

The extraordinary vogue of the winter resorts along the northern shores of the Lake of Geneva, popularly known as the "Swiss Riviera," is strikingly indicated by an hotel census of Montreux and Territet, recently taken by the municipal authorities, showing the number of foreigners visiting these resorts in 1908. Out of a total of 60,000 visitors, Germans number 16,700 and head the list, the British coming second with 13,000, while American visitors number 4,500. It is curious to note that members of touring societies are studiously ignored. The increasing popularity of Montreux is shown by the fact that the number of hotel visitors last year exceeded the number in 1907 by seven thousand.

The Winter Sports Death Roll.

To judge from the number of accidents (some fatal) in Swiss winter sports, such as tobogganing and ski-ing, which have occurred during the present season, these sports will claim a larger proportion of victims than the High Alps in summer. The number of accidents is no doubt partly due to the extraordinary popularity and catholicity of tobogganing in its various forms. Unlike most sports, a superficial degree of facility at tobogganing is easily acquired, and novices are prone to attempt without adequate

practice all kinds of runs. Then beginners usually ignore the varying conditions of the snow, and do not realise that if there is a scarcity of snow, what might otherwise be merely an awkward spill at the banked-up curves stands the chance of becoming a fatal accident.

The Trans-Pyrenean Railway.

The great international Franco-Spanish Railway scheme by which the Pyrenees will be tunnelled, and more direct railway communication afforded between Central France and Madrid, is making steady progress. The Somport Tunnel, on the line between Oloron and Pau—the "approach tunnel" before the international tunnel at Urdos is reached—was recently inaugurated with an impressive and strikingly picturesque religious ceremony, a solemn mass being celebrated at the entrance to the tunnel. It is curious that in an age which has seen great international tunnels like the Mt. Cenis and St. Gothard achieved, the French and Spanish Governments should have shirked the piercing of the great Pyrenean barrier and been content with turning the range at Bayonne on the Atlantic, and Narbonne on the Mediterranean. There is, indeed, much truth in Napoleon's aphorism that Europe ends with the Pyrenees.

New Customs Office at Turin.

Turin and Milan are to all intents and purposes the twin gates of Italy to the railway traveller, and consequently the absence of a Customs House at the Turin Central Railway Station (Porta Nuova) has always seemed anomalous. Hitherto, did an unfortunate passenger miss the examination of luggage at Chiasso, Modane or Vintimille, he was obliged to get his luggage cleared at the offices in the Porta Susa Station on the outskirts of the city, which usually meant some days' delay. Since the railways have been controlled by the State the grave inconvenience thus caused to travellers has presumably been recognised; at all events a Customs Office has now been opened at the Porta Nuova Station.

Recent Discoveries at Pompeii.

Some very important finds have recently been brought to light during the excavation of Pompeii, which goes on slowly but steadily from year to year, though the grant is small. The disinterred relics of this long buried civilisation were found in the Via Publia, and consist of three sepulchral monuments. The discovery has caused considerable interest among archæologists, as it seems reasonable to suppose that at last the excavators are on the track of the long-sought Pompeian Necropolis mentioned by Pliny.

Golf in Egypt.

It would appear that people now visit the Land of the Pharaohs not to see the monuments but to play golf under pleasant climatic conditions. In and around Cairo, to say nothing of the links at the Upper Nile resorts, there are now no less than four golf courses. There is the splendid course of the Khedivial Sporting Club at Ghezireh; a good sporting course of eighteen holes at Helouan; and the links attached to the Mena House Hotel, near the Pyramids. The latest has just been completed at the new residential suburb of Cairo near Heliopolis, known as Oasis, the White City built by Borghos Pasha in the desert beyond Abbassieh.

EUSTACE REYNOLDS-BALL.

MOTORING IN MANY LANDS

Trackless Australia.

That motor-cars have to be built strongly for service in our Colonies may be gathered from the illustration on page 256 of the type of track that had to be traversed for the greater part of the two thousand miles' journey that was undertaken by Mr. Dutton on a Talbot car from Adelaide, in the south, to Port Darwin, in the north of Australia. Detachable rims in combination with steel-studded tyres were employed. As the going was necessarily relatively slow, and the places where provisions and replenishments could be obtained were few and far between, it was necessary to utilise the back portion of the car as a sort of stores, the method being to carry one spare tyre transversely at the rear, one at either side, and a fourth on top. Curiously enough, the journey was accomplished practically without incident, and wholly without adventure, the greater part of the route lying over sandy desert and trackless wastes. It is considered that the severity of the conditions equalled, if it did not surpass, that of the much-advertised tour from Peking to Paris.

Uses of Cocoanut Matting.

A member of the Victorian Automobile Club has lately made a tour from Adelaide to Melbourne, with his wife and two friends, on a Daimler car weighing two and a quarter tons loaded, as against a 26 cwt. machine that was the heaviest that had previously made the trip, which includes ninety miles of so-called desert. Apart from this patch, the 591 miles of route occupied only twenty-four and a quarter hours' driving, but the ninety miles of desert took another day to cross. It speaks much for the improvement that has been effected in tyres that no troubles were experienced on that account, nor was there occasion to use a spanner throughout the whole trip. It must be borne in mind, however, that it is essential that any car employed for this sort of work should have a high clearance off the ground, while it is as well that the wheel-base should not be long, as that is sometimes a source of danger in negotiating awkward "hummocks," when struggling out of river beds and so forth. Two thirty-six foot lengths of cocoanut matting were included in the equipment, and were found extremely effective when deep, sandy patches were encountered. At one stage of the journey two hours' hard wood-cutting had to be undertaken to clear an old track that had become overgrown with " tea-tree."

Land-Hunting on a Car.

Yet another interesting trip was recently carried out by a prospector for high-class agricultural land at ten shillings an acre on the outskirts of a settlement in Western Australia. Setting out from Perth on a 10 h.p. Humber car, the first run was to York, a distance of sixty miles, which was accomplished at legal limit speed. Thence Northam was reached at a speed of twenty-two miles an hour. The real work began next day, when the route struck northward for seventy-two miles, during the latter portion of

which a sand-plain was encountered which afforded extremely heavy going. An old bushman who accompanied the party foretold that the journey would end at the commencement of this unpromising district ; but the event proved otherwise, for the sandhills were tackled in splendid fashion, and mechanical traction thereby scored a victory in yet another district.

Across Africa.

Lieutenant Graetz is nearing the end of his splendid motor-car journey across Africa, part of his success being due to the admirable and elaborate arrangements he had made beforehand for petrol and other replenishment depôts. The journey was commenced as long ago as August 10th, 1907, at Dar-es-Salaam, in German East Africa, and is intended to end at Swakopmund, the distance by the route that is being pursued working out approximately at five thousand seven hundred miles. The incidents to date have chiefly consisted in carrying out repairs, for in the wet season the wooden wheels swelled, and then when they shrank again in the dry season, all the screws dropped out. Consequently the rear wheels have been reinforced with broad V-shaped pieces, bolted on beside the spokes and extending from the hub-cap to the rim of the wheel. The necessity for carrying large supplies of petrol aboard has resulted in the body consisting chiefly of tanks, on which the passengers sit.

Varied Experiences.

Great trouble has been experienced in finding natives to accompany the motorists in the capacity of guides ; while, when crossing a river that turned out deeper than was expected, one of the cylinders cracked through being suddenly immersed in cold water when the metal was at a very high temperature. This meant a long delay while a spare cylinder was sent from Germany, which shows that as regards mechanism that might want replacing sufficient forethought had not been displayed in the organisation. Planked pathways have often had to be improvised across bush and swamp, while an immense raft made ten feet thick with rushes was used to transport the car across the Congo. Lions and elephants have been encountered *en route*, the latter displaying an embarrassing curiosity concerning the mechanically-propelled vehicle. Diet has been varied, sometimes consisting of frogs and crabs. Damp mud has been sucked to quench the thirst. Between Wankies and Bulawayo the natives displayed a strong propensity for thieving and made various attempts to lighten the car that were frustrated with difficulty. Moreover, they would not give the travellers water. Lieutenant Graetz left Johannesburg about two months ago.

H. Massac Buist.

AËRIAL·FLIGHT

A Popular Misconception.

It is curious how widely prevalent is the misconception that there are only two solutions of the problem of aerial travel—the dirigible balloon and the aeroplane. The error probably has its root in the fact that so far the only evidence afforded the public concerns one or other of those types of air craft. Like many new movements a great part of the practical work that has been done to date has not followed along what may be styled strictly engineering lines. Indeed, with possibly the exception of Mr. Lanchester's great work on the theory of dynamic flight that has recently made its appearance, no satisfactory or exhaustive attempt has been made to classify and reduce the phenomena of flight to a branch of engineering science. Put in brief, everybody seems to realise that a dirigible balloon is impossible to use except in relatively fair weather; while, because sundry types of aeroplanes have been proven capable of negotiating ordinary breezes successfully, it is quite confidently anticipated that in the fulness of time it will be possible to employ those craft in any sort of weather. Such a conclusion, however, is not necessarily correct.

Limits of the Aeroplane.

An aeroplane travels in part on the principle of the flight of a bird with wings extended. Apart from the fact that there are many wind-conditions that prove exhausting to many kinds of birds, we must bear in mind that an aeroplane lacks the faculty possessed by a bird of altering the inclination as well as the spread of its wings to a well-nigh infinite variety of degrees possible within the extent of those wings. The most that can be done with an aeroplane so far is to alter the angle of flight within a somewhat limited range, and to shield portions of the planes from the pressure of wind by warping the edges or corners of those planes, again within limited range. There is no evidence at present that it will ever be possible to increase the ranges in question, and to furnish means of movement in new directions to an extent that will enable an aeroplane to be used in tempestuous wind conditions; but it it may be argued, on the other hand, that for flying over the greater part of Europe under the weather conditions that obtain during the greater part of each year, the means that will be achieved during the course of the next few years of flexing planes automatically or otherwise will be sufficient to insure mechanical flight being possible on, say, three hundred days out of each three hundred and sixty-five. Certainly, if that is achieved, we should be able to claim that aeroplanes had become practical machines, because even boats, which have been used since time immemorial have, occasionally to put back for storms.

Entirely Mechanical Machines.

But there is a third school of mechanical flight which argues, with a large degree of reason, that as we can scarcely hope to construct any aero-

plane that will be capable of instant adaptation to any variety of wind conditions automatically, and that as the human eye cannot see the wind, it will never be really practicable to make every function of the machine depend upon the manipulation of the pilot, as, for example, in the Wright aeroplane, which does not aim at being automatically stable. The theory of this third class is that the law of mechanics must be exploited entirely, and that there must be no compromise in attempting to make a half use of the principle of floating wings as bearing surfaces. They argue that the "lift" as well as the "drift" must be achieved by the employment of revolving screws. Many ingenious attempts at constructing machines on this principle have been carried out in France. M. Santos-Dumont was one of the first to try to fly with a semi-helicoptre years ago; while one of the latest is the Vuitton-Huber helicoptre, which is a machine of extremely simple construction, wherein the motor is the lowermost portion, while midway and projecting behind is an ordinary propelling screw. Midway, also, and only very slightly in advance of the horizontal motor is a seat for the pilot. Immediately behind him, in the centre portion of the machine, there extends a vertical shaft rising from the motor and working in opposing directions two very large horizontal screws designed to lift the machine. Thus the theory is that the man and the motor would always hang under these screws even if the engine stopped, somewhat as a weight does at the bottom of a piece of string.

A Helicoptre-Parachute.

Another machine on much the same lines is the Ouvière helicoptre, wherein curiously enough an 80 h.p. electric motor is used, the whole weighing approximately 920 lbs. in readiness for flight. There is also the Cornu helicoptre. A fourth machine, details of which I am not at liberty to mention on account of patent procedure, embodies a more clever and varying system of construction, the lifting screw which turns one way being situated under the lowermost portion of the machine, and that which turns in the opposite direction forming the uppermost part of the aircraft, which is thus somewhat in the nature of a gigantic gyroscope, which should be so powerful as to be absolutely independent of any atmospheric variations. Not the least ingenious feature of this machine is that the variation of the pitch of either of the lifting sets of screws can be altered independently, instantly, and at will, the design being such that in the event of the motor stopping suddenly the whole appliance acts automatically as a mechanical parachute. As yet, however, no satisfactory public trials have been made with these types of craft. The mechanically lifted machine is, nevertheless, a sort with which flights will undoubtedly be accomplished in the not distant future. Until then judgment must be suspended.

H. Massac Buist.

TRAVEL · & EXPLORATION
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The Evolution of the Modern Aeroplane.

BY SIR HIRAM S. MAXIM.

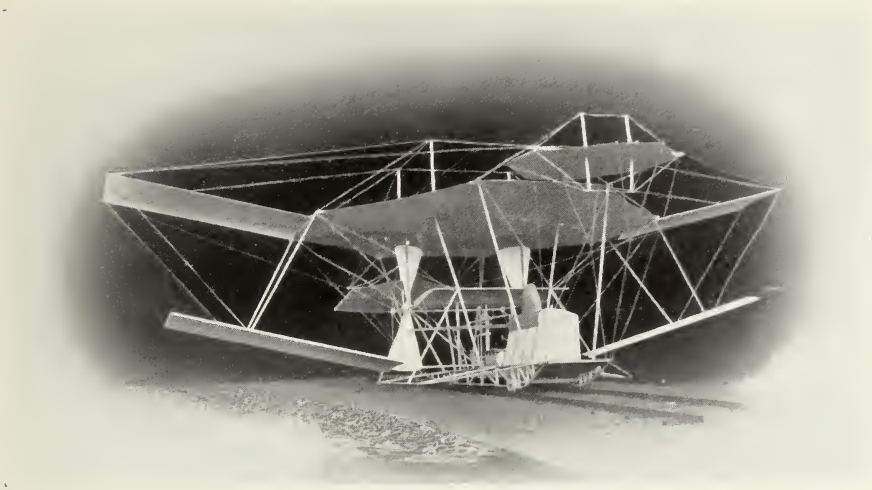
EVERY thinking man who is *au courant* with passing events must admit that we have arrived at the beginning of a totally new epoch, the importance of which cannot be over-estimated. Mankind has at last succeeded in flying by dynamic energy alone, after the manner of a bird. Civilized man has always sought to imitate the flight of birds. The common kite is to some extent a flying machine; it is certainly an aeroplane, but it has no energy of its own. It is so attached to a cord that it presents an angle to the wind, which in blowing against this angle not only pulls the cord in a horizontal direction, but also has a decided lifting effect, the consequence being that the kite rises in the air until it has reached a point where the angle at which the cord pulls is just sufficient to balance the lifting effect and to resist the tendency to travel with the wind. If we should construct a kite sufficiently large to lift a light and powerful motor, attach a screw propeller, and while the kite was flying start the motor running until the cord became slack, we should have a true flying machine, the thrust of the screw performing the functions of the cord. As the kite has long been familiar to man, it is nothing more than reasonable that it should appeal to his imagination and appear to be the simplest and most direct means of accomplishing the desired result. This idea was greatly strengthened by the appearance of steamships driven by a screw propeller. The screw proved itself very efficient in water, in fact more efficient than could be accounted for by mathematicians; therefore, why not use a screw for propelling a kite and so do away with the cord and get an apparatus that will fly in any direction? Curiously enough this is the only system which

has ever succeeded. An apparatus which is nothing more nor less than an exaggerated kite driven by a screw propeller is the only flying machine that we have at the present time.

As long ago as 1840, Henson designed and patented an aeroplane flying machine of enormous dimensions. The aeroplane was formed of woven fabric stretched on a wooden frame, the motive power being a steam engine driving two four-bladed screws. The weight of the complete apparatus was to be three thousand pounds. The main aeroplane had an area of four thousand five hundred square feet, and the tail or horizontal rudder one thousand five hundred square feet. It was believed that it would require twenty horse-power to lift and carry one ton ; therefore a steam engine of thirty horse-power was to be employed, and it was proposed to start the apparatus by running down an incline. This machine showed all the essential features of many of the aeroplanes which are now being experimented with throughout the civilised world, but in 1840, it is needless to say, the petrol motor had not made its appearance, and no light steam engine had ever been built. No attempt was made to build this enormous machine, but in 1844, Henson was joined by Stringfellow, and together they made a model of Henson's machine. This model was provided with a steam engine and was driven by two four-bladed propellers, each three feet in diameter and making three hundred revolutions per minute. The labours of the experimenters were greatly retarded by intruders, and when attempts were made to conduct experiments at night, the fabric of the aeroplanes became saturated with dew, and in shrinking, distorted the framework. However, Stringfellow went on and conducted many other experiments with aeroplanes, and was certainly experimenting as late as 1868.

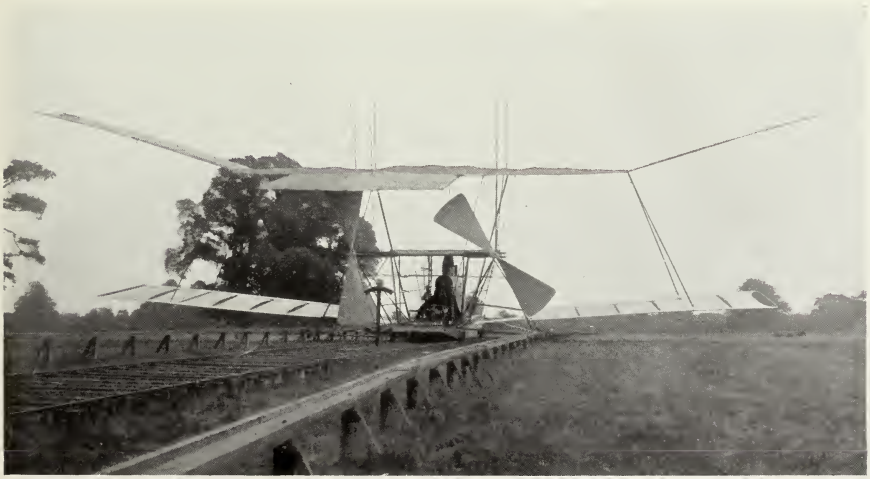
As experiments went on, it was found that surface alone was not sufficient, and if an aeroplane was, say, ten feet long and one foot wide, its lifting effect, if driven endwise through the air, was very slight, whereas if it was made sharp and thin, placed at a slight angle above the horizontal, and driven sidewise through the air, the lifting effect was enormously increased. It then became evident that an aeroplane, in order to lift a steam engine, would have to be of enormous length. Mr. F. H. Wenham seems to have been the first to discover and suggest a remedy for this state of affairs. He found that narrow aeroplanes lifted much more in proportion to their area than square ones, and in order to get sufficient area with narrow planes without too great a length from port to starboard, he arranged his aeroplanes one above the other, that is, he used superposed planes, as is done to-day. This meritorious invention was patented in 1866.

After Stringfellow, very little was done until 1884, when Mr. Horatio Phillips took the matter up, and made some very successful experiments, which demonstrated that very narrow aeroplanes placed one above the



Sir Hiram Maxim's Machine.

Showing the superposed aeroplanes, the twin screws, and the fore and aft horizontal rudders, all mounted on sledge runners.



Sir Hiram Maxim's Large Machine.

Showing the double railway track.

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other, after the manner of a Venetian blind, produced a very powerful lifting effect when driven through the air at a high velocity. Mr. Phillips was a firm believer in his own system, and put on record in a letter which he wrote to *Engineering* that no fabric-covered aeroplane could ever succeed. Nevertheless, up to the present moment, no other has succeeded.

During all the early stages of these experiments, professional mathematicians, who relied implicitly on Newton's law, did nothing but discourage all efforts in the direction of artificial flight. Eventually a great mathematician took up the matter; I refer to Professor S. P. Langley, of the Smithsonian Institute, Washington. Newton's law appeared to him to be erroneous, and he believed that there was a mistake somewhere. He writes :—"Nature has made her flying machine in the bird, which is nearly a thousand times as heavy as the air its bulk displaces, and only those who have tried to rival it know how inimitable her work is, for 'the way of the bird in the air' remains as wonderful to us as it was to Solomon, and the sight of the bird in the air has constantly held this wonder before men's eyes, and in some men's minds, and kept the flame of hope from utter extinction, in spite of long disappointment. I well remember how, as a child, when lying in a New England pasture, I watched a hawk soaring far up in the blue, and sailing for a long time without any motion of its wings, as though it needed no work to sustain it, but was kept up there by some miracle. But, however sustained, I saw it sweep, in a few seconds of its leisurely flight, over a distance that to me was encumbered with every sort of obstacle which did not exist for it. The wall over which I had climbed when I left the road, the ravine which I had crossed, the patch of undergrowth through which I had pushed my way—all these were nothing to the bird—and while the road had only taken me in one direction, the bird's level highway led everywhere, and opened every nook and corner of the landscape. How wonderfully easy, too, was its flight. There was not a flutter of its pinions as it swept over the field, in a motion which seemed as effortless as that of its own shadow."

These observations of a thoughtful boy evidently made a lasting impression upon the man, for we find that later on, doubting Newton's law, he writes as follows :—" After many years and in mature life, I was brought to think of these things again, and to ask myself whether the problem of artifical flight was as hopeless and as absurd as it was then thought to be. Nature had solved it and why not man? Perhaps it was because he had begun at the wrong end, and attempted to construct machines to fly before knowing the principles on which flight rested. I turned for these principles to my books and got no help. Sir Isaac Newton had indicated a rule for finding the resistance to advance through the air, which seemed, if correct, to call for enormous mechanical power, and a distinguished French mathematician had given a formula showing

how rapidly the power must increase with the velocity of flight, and according to which a swallow, to attain a speed it is known to reach, must be possessed of the strength of a man. Remembering the effortless flight of the soaring bird, it seemed that the first thing to do was to discard rules which led to such results, and to commence new experiments, not to build a flying machine at once, but to find the principles upon which one should be built ; to find, for instance, with certainty by direct trial how much horse power was needed to sustain a surface of given weight by means of its motion through the air."

Professor Langley having thus by pure reasoning satisfied himself that there must be some error in Newton's law, conducted a series of experiments, at first on a rather small scale ; nevertheless he demonstrated beyond the shadow of a doubt that an aeroplane would lift a great deal more than had previously been supposed by mathematicians. Similar experiments were conducted by Mr. Chanute, of Chicago, and he wrote to me that Newton's law was out as twenty is to one. All of these experiments were with small planes and at relatively low velocities. Shortly after Langley made his first experiments, I erected a very large apparatus for testing the lifting effect of aeroplanes. Where Langley reckoned the size of his aeroplanes in inches, I reckoned mine in feet, and I tested them round a circle two hundred feet in circumference, and found that Newton's law was out more than twenty to one. The late Lord Kelvin, who witnessed my experiments on more than one occasion, wrote to me that Newton's law was in error, and that a new formula was necessary. Lord Rayleigh also conducted experiments and arrived at the same results as Langley and Chanute, and still later I made experiments at still higher velocities with planes set at a very low angle, which did much better than had ever been done before, and I am able to assert that a very thin and sharp aeroplane twenty inches wide, slightly curved, with the front edge raised one inch above the horizontal—that is, having an inclination of one in twenty—and driven through the air at the rate of one hundred miles an hour, will certainly lift at least one hundred times as much as can be shown by Newton's law.

The foregoing demonstrations which proved that aeroplanes were much more efficient than had ever been supposed, and the advent of the extremely light and powerful petrol motor which has recently been developed at the expense of the manufacturers of motor cars, have stimulated a great number of experimenters to take up the subject afresh, so that to-day we have aeroplane flying machines which are actually carrying at least twenty times as much weight for the power consumed as the mathematicians of twenty years ago believed that such machines could possibly carry.

In 1889, I commenced a series of experiments in order to ascertain the

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The Farman Machine.

The superposed aeroplanes are arranged on the Hargraves principle.

The Wright Machine.

The aeroplanes are not arranged on the Hargraves principle, which gives it a decided advantage over many other machines.

[Blocks by "Automotor Journal (Yellow Cover) and Flight."]

actual power required to perform artificial flight. My first experiments were with screw propellers working in the air, and I found that here again mathematicians were all wrong. Properly made screws did very well indeed and were very efficient, while imperfect ones worked very badly indeed. I then conducted experiments with aeroplanes of various sizes from three to eight feet in length and of various widths, and found that a well-made aeroplane, when driven through the air at a high velocity, had a lifting effect much more than I had supposed. Having ascertained that a screw propeller obtained a good grip on the air and could be relied upon to act as a propeller, and that an aeroplane could be made to lift one hundred and thirty-three pounds to the horse-power, I decided to build a large machine. I first intended to use one hundred horse-power, but the resistance offered by the framework and wires passing through the air was so great that I ultimately increased the power to three hundred and sixty-two actual horse-power delivered on the screws themselves. The total width of my machine from port to starboard was one hundred and five feet. I used two wooden propellers, each seventeen feet eleven inches in diameter, and when the engine was working up to its full power these screws gave a thrust of over two thousand pounds. I used superposed aeroplanes, and when my machine was running at a speed of forty-two miles an hour, the lifting effect was more than a ton over and above the weight of the water, the petroleum, and three men on board. This was the first machine ever made that would lift more than its own weight, and I fully appreciated the import of the discovery. But it should be borne in mind that at that time the light petrol motor had no existence, and I was forced to use a steam engine and boiler. It is true that I made the lightest boiler and engine that had ever been known, but the quantity of water required was so great that the machine had no practical value except as a scientific demonstration. However, the facts had been ascertained and the data established, so it only required the development of a light motor in order to make the machine a complete success.

This machine was made and tried at Baldwyn's Park, in Kent. At the time of building it, I did not fully appreciate the difficulty I should encounter in order to learn to manipulate it in the air. Ultimately, however, I saw that it would be necessary to conduct a good many experiments on a level track of land before free flight could be attempted, and everyone who has experimented with flying machines, from that day to this, has found it necessary to conduct a large number of experiments on a large and level field before attempting free flight. I found it impossible to obtain the necessary space and had to be content with a relatively narrow strip of level ground eighteen hundred feet -long, bounded on both sides by large trees. On this I laid down a railway track, nine feet gauge, and mounted my machine on light steel wheels

only to find that a relatively slow speed would lift at least one of these wheels off the track. I then obtained some very heavy axletrees provided with heavy cast-iron wheels, weighing altogether fully a ton, and arranged my machine in such a manner that it could lift away from the axletrees, leaving the weight of the wheels on the track; and between the axletrees and the machine I interposed strong springs and a device for measuring the lifting effect. However, when everything was adjusted, I found that it took a great deal of power to set these enormously heavy wheels spinning, and it was very difficult to stop at the end of the track. Moreover, when I ran at a speed of only thirty-five miles an hour, the front wheels, which were of very great weight, were lifted clean off the track and sunk into the soft earth. The next step was to discard these heavy wheels and axletrees and to supply in their place very light tubular axletrees and light steel wheels; also, to provide another track and another set of wheels to prevent the machine from lifting free of the steel rails. This track for arresting the lift was made of strong Georgia pine, three inches by nine inches, and was so arranged that when the machine had lifted only a few inches from the steel rails, another set of wheels would engage the lower side of the wooden track, which was of thirty-five feet gauge and elevated about three feet above the ground. I found it a rather difficult and expensive job to anchor this wooden track firmly to the earth, but when finished, it certainly kept the machine on the track at all ordinary speeds, and I made several runs when all of the four holding down wheels engaged the upper track, showing that the aeroplanes were not only carrying the whole weight of the machine but a considerable amount besides.

Wishing to make a final test with all the power the engines would develop, I tied the machine up to a dynamometer, and when the screws were producing a thrust of about two thousand two hundred pounds, I gave the signal to let go, and the machine bounded over the rails at a great pace. There were six hundred pounds of water, one hundred pounds of petroleum, and three men on board. The acceleration was so rapid as to make it difficult to keep on one's feet. After running about two hundred and fifty feet, all the upper wheels were engaging the wooden track, and at about eight hundred feet, the lifting effect became so strong that one of the axletrees of the upper wheels, made of two inch steel tubing, doubled up, the opposite wheel became disengaged from the track, and the lifting effect on the two forward wheels became so great as to break the Georgia pine three by nine plank, and raise it into the air, where the broken end struck one of the screws at the very instant that I shut off steam. As the machine became detached from the track, it was certainly floating in the air, and it came down on the greensward, the wheels sinking directly into the earth, leaving no track, thus demonstrating that the machine was fully supported by the air at the time that steam was shut off. This

[Reproduced by permission of the "Automotor Journal (Yellow Cover) and Flight."

The British Army Aeroplane.

It appears that the framework of this machine offers so much resistance to the air that only very short flights are possible.

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was the first time in the history of the world that the weight of a man was lifted by an aeroplane. The men that accompanied me on this flight were George Court, now living at Crayford, and Thomas Jackson, now of Bexley Heath.

My experiments were conducted on a very large scale with very perfect apparatus, and were extremely expensive, but it is gratifying to me that they were sufficiently thorough to demonstrate the best lines on which a flying machine could be constructed, as is witnessed by the fact that all of the flying machines of the present time that have met with any degree of success are constructed on identical lines ; but instead of being weighted down with a heavy steam engine and boiler and a still heavier water tank, they are driven with petrol motors, which are now made so extremely light that it is possible to obtain the power of one horse with a weight no greater than that of a small barnyard fowl. It is in fact claimed by some that the French are now making flying machine motors which only weigh two-and-a-half pounds to the horse-power, but I think this statement should be taken *cum grano salis.*

It is said in the United States that some people are born rich, some are born lucky, while others are born in Ohio, which certainly appears to be still better, as is witnessed by the wonderful crop of fairly good presidents and the clever engineers which that great State has recently produced, not the least of whom are the Wright Brothers. Some years ago, I was asked if it would be possible to make a flying machine so perfect that a man could lift himself into the air by his own muscles, and I said :—" A man in order to fly would have to be provided with seventy-five pounds of muscle on his breast, and a breast-bone twenty-two inches deep ; his lungs would have to weigh about thirty pounds, and in order to compensate for this extra weight, his legs would have to be reduced to the size of a broom-handle, his head to the size of an apple, and his feet to the size of mere claws. He would then be a bird-like man." Mr. Wilbur Wright has been referred to by the French as the " bird man." I have seen Mr. Wright, and find that he is not so bird-like in appearance as one might judge from the numerous representations of this gentleman on the comic postcards that one finds in France. However, the Wright Brothers are entitled to a great deal of credit. They were the first to attempt free flight, and their European success has been such as to produce a decided *furore.* Thousands of the cleverest mechanicians in the world are at present devoting all their energies to the development of aeroplane flying machines, and it is now only a question of a few months before machines will make their appearance of such size and power that none but the blind can dispute their value, at least as a military engine, and those nations which have not the money, the enterprise, or the skill to join the procession will have to be satisfied with a back seat.

Pioneering in the Sierra Leone Hinterland.

By T. J. ALLDRIDGE, I.S.O.

Formerly Commissioner for the Sherbro District.

It was in 1871 that I first set foot on the hot red ground of Sierra Leone. At that time few people took any real interest in the Colony, and no European had penetrated beyond its narrow limits into what is now called the Protectorate. But for all that, a good many European merchants on the Coast itself did a great deal of very lucrative business in an old-fashioned, strictly wholesale way that left an ample margin of profit for the Creole Sierra Leonean retailers. So they were all content to jog along the well-worn track without troubling themselves to explore the distant lands whence their dusky customers brought down the produce to be exchanged for imported goods.

There came a time, however, when the merchants looked in vain for their cargoes. Something was wrong somewhere. Then it became known that far up-country the roads had been stopped against the native caravans, that the worst tribal war that had occurred for many years was raging wildly, and that the Hinterland was suffering terribly from an invasion of Sofa war-boys—mercenaries of the fiercest kind, whose trade was war and who were ready to sell their services to any chief who wished to invade a neighbouring chiefdom. Things at length arrived at such a pass that the interference of the Government became imperative, and under the Administration of Sir James Shaw Hay in 1889 two Travelling Commissioners were appointed, of whom I was one.

The country allotted to me in the first instance was Mendiland, to the

High Trestle Stick Bridge, Mendiland.

Native Leopard Trap.

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east of Freetown. My instructions were to go into Mendiland, a generic term that includes many countries, find out all I could about the people, make a map fixing the positions by means of astronomical observations, and, where possible, enter into friendly treaties in the name of the Government with such paramount chiefs as I should come in contact with. I naturally set out on my mission with feelings of great uncertainty both as to my reception and my own fate; although the exploration of the unknown must always awaken a spirit of adventure that gives a strange fresh zest to life. My starting point was Bendu, Sherbro, to the south-east of Freetown, and distant therefrom about ninety-five miles by water. My escort consisted of seven native police and twenty-five carriers and hammock-bearers. I carried no tent, no bed or mosquito net, for I relied upon obtaining accommodation in the native towns. I determined to live as much as possible upon the country food, as I knew I should never starve so long as I could get African rice; so I took only a small stock of canned provisions, in case I might find myself detained in an unfriendly town and unable to obtain food. We had also to carry several loads of cloth and leaf tobacco as "Government shake hands," or presents, to unknown chiefs who had never yet seen a white man.

Pandeme, far away to the north-east, then a Sofa war-town, was the limit of my tours, and is now outside the British sphere of influence. Between these places I zigzagged for four years, until I had covered six thousand miles. I may therefore claim to have seen a good deal of the country and its peoples, but I can now only mention the points that struck me most. To begin with, we had not gone far before we noticed many white objects on the ground, which proved to be bleached skulls. For miles not a town was to be seen; all human habitations had been destroyed. Here and there throughout the country we had terrible evidence of the recent war; in many places the entire population had fled, and not a human being was to be met.

All sorts of natural obstacles occurred. Of these the numerous swiftly-running streams, waterways, and deep gorges were the worst. Sometimes these waters would be spanned by a rude bridge, such as is shown in the first photograph, looking perhaps fairly sound, but in reality absolutely rotten. On one occasion I was crossing one of these deceptive structures with my orderly in front of me, my hand placed lightly on his shoulder (for it is hazardous to walk over these uneven shifting tree stems in boots), when, as we reached the centre, at a considerable height, the entire bridge collapsed and we fell to the bottom of the ravine, which, as good luck would have it, was dry. Some of these places were so dangerous that even my boys would hesitate, and say: "Massa, that nar bad place; s'pose we go down, they no able for find we again." But for these rough experiences I was amply repaid by the long journeys, the

memory of which will be a life-long pleasure, which revealed to me the African forests as a fairyland of inconceivable loveliness.

In these immense solitudes life is on a scale so vast and so beautiful that it is an education in humility, as for days you march through a paradise untouched by human hands. Strange to say, although the bush is full of animal life one sees very little of it, animals and even snakes shunning the human invader. The leopard is the animal most feared by the people, and I have frequently come across the log trap the natives set for them upon a likely track. Large chimpanzees and non-prehensile monkeys of many kinds abound in the forests and do much mischief when they invade the villages in search of food.

During a good deal of travelling by circuitous routes, adopted for the purpose of seeing for myself the real state of affairs and ascertaining the feelings of the people, I came across very few villages, as they had nearly all been destroyed by the war. At length I arrived at Bandasuma, an important town that had suffered severely, but was then in course of rebuilding. Here I began to meet with the chiefs who came in from the surrounding places to see me. One of the greatest war-chiefs in an adjoining country, on arriving with his people, showed alarm, being uncertain of his reception. I at once reassured him, and we were soon on friendly terms. All sorts of latent grievances were simmering between the chiefs, but I made them understand that the British Government would not permit these disastrous tribal wars to go on any longer. There was endless palaver, but at length to my gratification the big war-chief entered into treaty. The whole town then broke out into tom-tomming and other rejoicings that turned the place into a veritable pandemonium.

A white man being a novelty, my advent and the purpose of my coming got quickly noised abroad, and afterwards wherever I stopped people came in from considerable distances to see me. As I went through the villages the naked children fled with wild shrieks when they espied me. In the large upper towns I was quite an exhibition, and, as I sat in my hut, had to be constantly on view. At last things got to such a pass that I had to regulate the traffic. One young woman tried to force her way in, in spite of my orderly : " I have come a long way to see the white man and I mean to see him," she said in the Mendi language, " and I mean to stop a good while that I may see him well and tell my people what he is like." I then had the hut cleared for the ladies, and had them ranged up against the mud wall, where smileless and silent they stood gazing at me. Ultimately I grew used to that sort of thing, and was able to go on writing unconcernedly.

I found a large amount of intelligence among the up-country people, and the ceremony with which they conducted their great public meetings and the shrewdness of their questions appeared to me quite remarkable.

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Native War Boys, Upper Mendi.

The "Nefari" Devil.

This "devil" works in conjunction with the Poro Secret Society for Men.

I made in all eleven treaties with as many paramount chiefs, and I am convinced that every one of them knew what he was doing when he made his mark. Of course in many cases lengthy negotiations had to be carried on in the public "barris," or palaver courts. Most of the chiefs struck me as having a considerable capacity for ruling. The up-country towns were all entered through a series of war fences, sometimes as many as ten. These fences were made of the stems of small live trees, planted a few feet apart, the intervening spaces being filled during war time with baulks of timber, securely fastened by a rope-like creeper known as "tie-tie," and guarded by war-boys. The narrow entrance was always formed of a single slab cut from a spur of a huge silk cotton tree.

After great hardships and travelling of the roughest kind I arrived at the dreaded war-town of Pandeme, the limit of my tour. Messengers from the chief met me in the dense forest, desiring me to proceed no further, and I had to camp in an old rice plantation surrounded by war-boys. Some of these war-boys saw me using my sextant outside the town, and thinking that I was talking to the sun, concluded that I was going to bring "very bad medicine" to them. However, the next morning after my Bandi interpreter had been sworn on the country medicine, we made a move and entered the first of the ten war fences. It was an hour before we could get through the other nine, and upon reaching the quadrangle I found that the town was held by a most cut-throat set of armed ruffians, different from any people I had seen before. Pandeme was invested with so much fetish that it was some hours before the chief would appear, and when he did, nothing would induce him to sit near me. Things soon became extremely unpleasant, and no treaty could be made; it seemed indeed highly improbable that we should escape with our lives. I sat up all night with loaded arms in front of me, not knowing from one moment to another what might happen, as I could very easily have been shot through any part of the hut I occupied. In the morning things looked worse than ever, but we ran the gauntlet of the ten fences and got off safely, very much to the surprise of myself and of my party.

I have recently been informed that no white man has been to Pandeme since I was there. The place is now in the Liberian country.

It was not always easy to make the people believe that I was really on a mission of peace, or that I was not bringing some white man's fetish with me. In one of the fenced towns the chief, after making all sorts of excuses to prevent my entering, declared that my police were antagonistic to his people. I agreed to leave them outside, but that would not satisfy him, so I had to leave my carriers as well and go in by myself. I found the place well fortified, native fashion. I walked about, making my way with difficulty through the crowds of war-boys, women and children, always trying to keep those who followed me in good humour, until getting

near the centre the chief made this pleasant remark : " Now that we have got you here we are going to keep you here." I pretended to take no notice, and continued to joke with the people ; but I gradually worked towards the war-fence. Fortunately I just came upon the opening and managed to slip through.

I believe this was merely done to scare me, as the chief afterwards became quite friendly, and I ultimately succeeeded in putting an end to the fighting there, making a formal peace between the belligerent tribes a few months later.

At one time it was reported that the Sofas intended to destroy all the country down to the coast at Sulima, and carry back some bottles of sea water as trophies. I had then all my work cut out in preventing the war from overrunning the chiefdoms of lower Mendiland. Later on, when things were looking brighter, the chiefs would sometimes get up an entertainment in my honour, generally a Poro or a Bundu devil dance of some kind. These devils may be taken as the visible sign of that terrible fetish that is the greatest and most mysterious enemy of the Mendi people, and which still holds them in thrall ; but fetish is too subtle a subject to be dealt with here.

The creation of the Protectorate only dates from 1896. Nowadays the whole country is under the control of the Government. The Sofa war-boys no longer invade the land. In their stead a fine native Frontier Force under white officers maintains the proper patrol of the various districts into which the Protectorate has been divided, each district being under a British Commissioner. The power of the chiefs has been curbed, and the whole Hinterland is now at peace ; for with a new Government railway running for two hundred and twenty miles into the remote districts, the chiefs realise that they are no longer inaccessible—as they once believed they were.

The railway is effecting a wonderful transformation. Those who made in other days the journey from Freetown to Baiima—the present terminus—by hammock, experiencing all the attendant perils and discomforts, and taking three weeks to reach their destination, can scarcely conceive it possible that they can be covering the same ground as they sit in a comfortable lounge seat in the coach of an up-to-date railway, and make the journey in a couple of days. There is still, however, plenty of bush travelling of the old style to be had by those who will turn aside to see the towns and villages of the great practically untouched tracts of the Sierra Leone Hinterland.

Girls of the Bundu Secret Society.

The Bundu Devil.

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Through Queensland in a Motor Car.

By Hon. J. W. BLAIR.

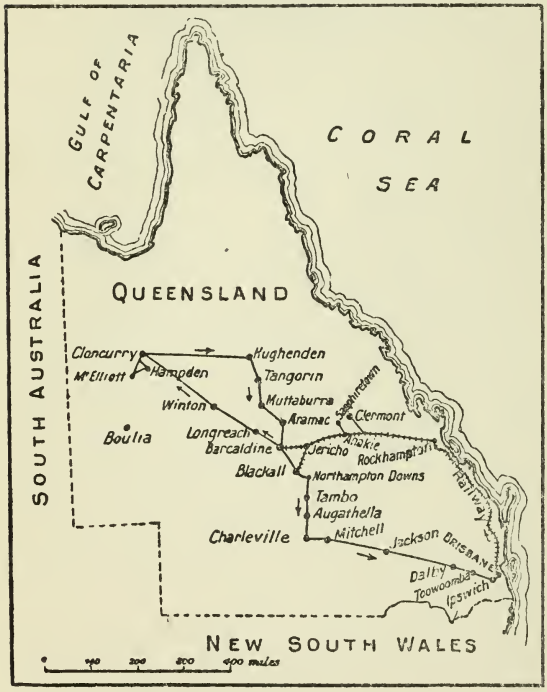
Attorney-General and Secretary for Mines, Queensland.

A few months ago I took advantage of the Parliamentary recess to accede to numerous requests that I should travel from place to place and familiarise myself with the wants and requirements of particular districts in remote parts of Queensland. For many reasons, not the least of which was the limited time at my disposal, I decided to attempt the journey by motor. I took my four-cylinder Panhard car, which is a 1905 model of 25-30 horse-power, and a party consisting of Messrs. A. D. Murphy (owner of Northampton Downs, a Queensland pastoral property a hundred square miles in area), H. N. Leach (special representative of the *Courier* and *Queenslander*), J. D. O'Hagan (private secretary to the Attorney-General), and C. E. Hall (chauffeur). The tour commenced at Blackall, which is distant by rail 774 miles from Brisbane, and had as its objective Cloncurry, the centre of an exceedingly rich and extensive mineral district in North Western Queensland. There was nothing heroic about the undertaking, and we were full of doubt as to its accomplishment.

In going to Blackall, the traveller by rail from Brisbane passes through Jericho, a township on the River Jordan. The latter is a disappointing stream, and if it is anything like its historic namesake, one can readily understand Naaman's preference for Abana and Pharpar. The gidyea tree flourishes in the district, and with the first showers of rain the leaves emit a disagreeable odour. The soil in the Blackall district is similar in character to that encountered throughout the great pastoral and artesian belt extending for some hundreds of miles to the north, west, and south. It is black, and in wet weather intensely sticky.

At Blackall we had a week of entertainment, the town being *en fête* for the official opening of the railway and the annual show. (It should be stated that, with a few exceptions, the Queensland railways are constructed and controlled by the Government, and the lines measure in the aggregate about three thousand five hundred miles.) Blackall has a reticulated water supply from artesian bores, the water issuing from the bores in a very hot state and being artificially cooled. Like most artesian waters it possesses medicinal and therapeutic properties. A liberal education is afforded by observing the part taken by the artesian water in transforming the surface of the country. Sandy tracts without trees or herbage of any kind have been changed into smiling gardens and rich orchards by its use.

We left Blackall on the morning of May 23rd, 1908. The road for nine miles out from Blackall was sticky blacksoil, which made travelling difficult, and accentuated our doubt about the complete success of the trip. However, we negotiated that road and many others which, like the curate's egg, were "excellent in parts." The Barcoo country is splendidly grassed and carries thousands of sheep. At Alice Downs we met a large mob of travelling sheep, and a little further on a thousand head of bullocks on their way to the southern markets. It was expected that the Alice River, which at the season in question consisted of loose feathery sand, would be a serious obstacle, and Mr. Murphy had telephoned from Blackall to Barcaldine Downs Homestead for coils of wire netting to assist us to make the passage, but the car crossed the sandy bed of the river at a high speed without the aid of the netting. Barcaldine Downs Homestead is an imposing structure typical of the Queensland pioneer's home. At the shed on this station a shearer named Jack Howe established a world's record by shearing three hundred and twenty-one sheep in one day. The stations in Queensland have telephonic communication, and on one station there is no less than eight hundred miles of wire. By means of these telephones the squatters can converse with one another, and with the different out-stations on the run; and if a fire occurs in the district—even though hundreds of miles away—they can locate it.



After leaving Barcaldine Downs Homestead we encountered nothing but loose sand, rendering travelling so difficult that the water in the jacket became heated to boiling point. Soon afterwards, however, we reached Barcaldine, having covered the distance from Blackall (about eighty miles) in a little over four hours. Barcaldine is built on a foundation of sand, but the bore water has done much to make it a veritable oasis. The party

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In the Sandy Bed of Bull Creek.
Where the car had to be dug out and forced over inch by inch.

Crossing the Sandy Bed of the Fullarton River.

remained in Barcaldine until May 26th, when a start was made for Longreach. A short stay was made for lunch at Tara Homestead and Longreach was entered at sunset that afternoon. Longreach is considered to be the finest pastoral town in Australia. In these towns the wool waggons are frequently in evidence. The fleeces are transported on the waggons for very long distances to the railway, the vehicles being drawn by numerous horses and bullocks. A different method of locomotion is that provided by the goats, and it is a common sight to see a team of these animals drawing water. Like other western towns, Longreach has an excellent water supply from artesian sources.

We left Longreach on the afternoon of May 27th, and arrived at Winton —over one hundred and forty miles distant—at 10.20 p.m. that evening. There is downs country for miles and miles, and one can only see an ocean of waving grass—the characteristic of the west and north-west, which are largely prairie. For miles and miles the traveller sees no elevations except ridges so slight in their ascent as to be almost unnoticeable. The greatest difficulties are presented to the motorist by innumerable wash-outs and projecting stones, and as the car I used had only a low clearance we were obliged to exercise great caution.

The entry into Winton was particularly difficult. Heavy rain had fallen during the previous week, and the heavily-laden wool waggons had cut up the soil to a surprising extent. The road had to be travelled by the car in semi-darkness, as the acetylene lights were not working properly. The waggons, with varying weights from seven to thirteen tons, had in places sunk to the axles. We passed one which was bogged and apparently immoveable, and soon after almost ran into a mob of cattle, which appeared to us as moving and deceptive lines of darkness. Voices of the men attending the mob warned us of the danger, and we pushed silently on. The lights gave out, but we persevered, and by use of the screw jack when the car became embedded in the blacksoil ruts we overcame the difficulties. To intensify—if that were possible—the bad condition of the road, some thousands of travelling stock had gone over it, and the combined result of heavily-laden wool teams and the tramping of travelling stock on hardened wet blacksoil " beggared all description."

On the morning of May 28th we left Winton and lunched at Eldersli Station, distant about forty-seven miles. Mr. Ramsay, the owner of this station, has a Vulcan car, and very kindly allowed his chauffeur to come down on our car and show us the road to Cloncurry. Unfortunately the chauffeur put us on one of the many roads which lead to Boulia in the far west. We travelled along the road for some three miles in a direction which suggested that something was wrong, and were surprised to meet another motor car coming from the direction of Boulia. This proved to be a touring Minerva car in which Mr. Wills Allen, of Toolebuc Station,

was making for Winton. Turning and retracing our tracks with him, we met Mr. Ramsey coming towards us in his car to rectify the mistake his chauffeur had made. That constituted what I think may fairly be called a unique incident, as it was a meeting of the only three automobiles in the vast north-west.

We reached Kynuna Station—about one hundred and five miles from Winton—that evening, and spent the night at Kynuna Station. At sunset we pased a mob of sixteen thousand travelling sheep going from Kynuna to Manningham. The township of Kynuna is situated on the historic Diamantina, along which we motored for the greater part of the day. To reach the station we had to cross the river shortly after dusk, and through misdirection on the part of a guide who had imbibed rather freely we nearly ran into the river at its deepest portion.

At this stage of the journey we began to show the effect of the climate and the sun, for we were now well above the Tropic of Capricorn. The skin on our faces had first reddened and was now peeling in small flakes. I have heard the atmosphere compared to champagne. The effect of the western air on persons travelling as we did lends credence to this comparison. It sends the blood leaping through one's veins. Along the route we took we had the sun in our faces, with the result that the skin became rough and resembled to a small extent corrugated iron. Gradually faces grew redder and then darker, and noses assumed peculiar appearances.

We left the hospitable homestead at 9.30 the following morning (May 29th) with the knowledge of a long and difficult journey before us, and were delighted to find the road between Kynuna and Mackinlay—a distance of fifty-five miles—in excellent condition. We covered this distance in an hour and twenty minutes. One of the Queensland papers in an account of this performance credited us with completing the run in one minute and twenty seconds, which, like the report of Mark Twain's death, was a gross exaggeration. Before leaving Kynuna we telephoned to Mackinlay and ordered lunch at the local hotel. On our arrival we had a humorous passage with the landlady, who declared that we "must have flew." We left Mackinlay shortly after 1 p.m., and with some difficulty crossed the Mackinlay River. The banks of this river rise precipitously from a bed of sand. A little further on we met the mail coach from Cloncurry—the coach making way for us by drawing off into the grass which almost hid the horses. A remarkable thing is that throughout the trip horses and cattle did not seem concerned about the car at all. The camels, however, which we met in the Cloncurry district, were startled by it. A motor appears to be the only thing of which they are afraid; they usually frighten cattle and horses.

The photograph of Bull Creek will give an idea of some of the difficulties we had to experience in crossing the rivers and water-

courses we frequently met with. In one place the bed of loose feathery sand extended to a depth of six or seven feet, for it was then the winter season; but by laying down boughs, digging up the sand and making a firmer track, and then by dint of hard pushing, we managed to cross. Another photograph shows our party taking the car across the sandy bed of the Fullarton River in the Cloncurry district. The boughs spread in front of the car enabled the wheels to get a "grip" in the loose sand. We had made a resolution that we would have no assistance from horses or vehicles, but would rely upon the strength and resource of the party. In this way we crossed the Mackinlay, the Williams, Bull Creek, Norah Creek, Gidyea Creek, and innumerable "Sandy" Creeks. Twenty miles from Cloncurry we left the pastoral country and entered a region which suggested some huge volcanic upheaval in the twilight of Time. Naturally travelling in such country was not without its difficulties and its dangers, but at sunset we glided into Cloncurry amidst ringing cheers from many of the townspeople. A record had been established, for the Panhard car was the first to make the journey through the eight hundred miles separating Blackall and Cloncurry.

On the following morning (May 30th) we made a start for Mount Elliott and Hampden Copper Mines. The former is eighty miles from Cloncurry. We took two guides, but they mistook the road and directed us many miles out of our way over an indescribably rough journey through waterless mineral country. Once more we were on the Boulia Road, and, darkness setting in, we were obliged to halt at a spot called Limestone, which is well described as a stony spinifex ridge. Spinifex is a grass, or vegetable porcupine, the spikes of which terminate in the most sharply pointed ends. We spent the night on the ridge without food or water, and with very little shelter from a cold south-easterly wind. At dawn next day we retraced our tracks, and after travelling some fourteen miles came upon a carrier's camp. The carrier was busy at the fire as the car went rapidly towards him, and when he faced us he was dumbfounded by the apparition. He told us he thought the car was "a bloomin' steam engine that had run away." Like many others in the far west he had never seen a motor car before. He gave us breakfast and directed us to Mount Elliott, where we spent several hours inspecting the mine and works. In the afternoon we visited Hampden and returned to Cloncurry on the following day (June 2nd), and, leaving again on June 4th, travelled by rail to Richmond in a breakdown van for the purpose of inspecting the newly-constructed railway to Cloncurry. From Richmond we motored to Hughenden on June 5th, and had the unique experience of meeting a plague of grasshoppers. It took us about seven minutes to motor through the moving cloud of insects. We stayed a night in Hughenden, spent the next night at Muttaburra, one hundred and fifty miles to the south of

Hughenden, and then dashed across to Barcaldine, about one hundred miles distant, reaching there in less than a fortnight after our departure. During that time—and without any special effort at record-making—we had covered a distance of almost two thousand miles. There had been one puncture—the only one of the whole trip—and it occurred near Muttaburra.

From Barcaldine I went to Clermont, a famous alluvial centre, and then back to Emerald and on to Anakie for the purpose of visiting the gem fields. Queensland is wonderfully rich in minerals and in gems. There are about two hundred and fifty different kinds of gems known to the jeweller, and more than half of these are found in Queensland. The opal and the sapphire are two of the principal gems. Opals—those "shattered pieces of rainbow"—are found in a belt extending from the tropics right down to the New South Wales border, and the opal found in Queensland is superior to the opal obtained from Hungary. No doubt many of my readers will have seen the display of Queensland gems at the recent Franco-British Exhibition, where Her Majesty fittingly described our sapphires as "drops of golden sunlight." From Anakie and Sapphiretown I returned to Blackall, and thence to Northampton Downs. There we saw flocks of galahs, a bird of the parrot family. Thousands of these birds circle in their flight as you approach their feeding places in the long grass. We have seen them on the telegraph lines in such numbers as almost to snap the copper wire. Northampton Downs carries two hundred thousand sheep, and is excellently watered by means of artesian bores—one of which is shown. At one of the bores we visited in North Queensland we met a commercial traveller who assured us in all seriousness that fish were found issuing with the water from the bore. One of the party incredulously inquired whether, owing to the heat of the bore, the fish were cooked. One of the Queensland bores has a flow of two million gallons per day.

We spent four days at Northampton Downs, and travelled to Charleville in one day, maintaining an average speed of twenty-five miles an hour, and covering the two hundred miles in eight hours. At Nive Downs we overtook the mail coach which had left Northampton on the previous day, and were able to replenish our supply of petrol from the cases it carried for us. Charleville is 483 miles west of Brisbane. The road traverses the Angellala Range, which we were warned not to attempt, as the difficult descent had proved the ruin of many vehicles. The last photograph shows how the car negotiated the boulder-strewn pathway down the range. As far as Warra the road from Charleville is for the major portion totally unfit for motor traffic. Frequently the car became bogged, and it gave us considerable difficulty to extricate the wheels. Roadmaking and bridge building now became the order of

A Bore on Northampton Downs.
This bore has a daily flow of 100,000 gallons.

Descending the boulder-strewn Angellala Range.

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the day, and progress was necessarily slow. From Warra to Brisbane the road was good, and altogether the trip from Charleville occupied only four and a half days. The Toowoomba Range was descended without mishap, and when the car drew up in the main street of Brisbane its occupants were accorded an ovation. We had then covered some three thousand five hundred miles in a little over a fortnight's actual travelling, and had demonstrated the utility of motor transit in the heart of Queensland.

One cannot help feeling a thrill of pleasure in the contemplation of the pluck, the grit, and the industry of the pioneers of Queensland. She is indeed a great State of immense resources, and wonderful potentialities. The people of the West and North-West need railway communication. In dry times men have seen their flocks and herds die and dwindle, and in order to prevent this wholesale destruction of flocks and herds railway communication is necessary. It is a country of magnificent distances, and there should be some method of conserving water on the stock routes. As to the mining industry, I think it is recognised that a splendid future awaits Queensland from its copper industry alone. Much good would doubtless result if the experiment of boring for minerals were tried.

Queensland is wonderfully free from pests, but prickly pear is plentiful between Warra and Charleville. Kangaroos are dying out in the West and North-West. Emus are killed by the station owners, as these birds destroy the rabbit-proof and other wire fences, and also worry the young lambs. Premiums are offered for their beaks and heads.

Of the hospitality of the people I can say nothing except that it is of the most generous kind. Even the swagmen on the road and the fossicker in the mountain valley will ask you to share his damper and tea.

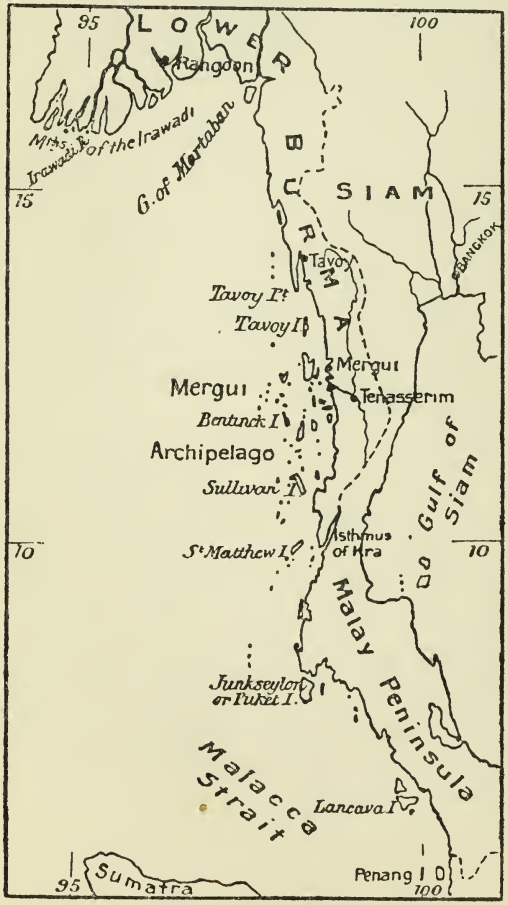
Of the splendid grasses of the West and North-West I need only mention the Flinders, the Mitchell, and the Blue Grass, which cover that immense tract of country and make it the richest pastoral land that it is possible to conceive. Ingalls, the American orator, has said : " When life's fitful fever is ended and the foolish wrangle of the market and forum is closed, grass heals over the scar which our descent into the bosom of the earth has made, and the carpet of the infant becomes the blanket of the dead. Grass is the forgiveness of Nature—her constant benediction." These words strike one with double force when one is travelling through the rich grasslands of that fair State, Queensland.

The Mergui Archipelago.

By R. N. RUDMOSE BROWN,

Lecturer in Geography, Sheffield University.

There is probably no part of the lands bordering the Bay of Bengal which to-day is so seldom visited and remains so little explored as extreme Lower Burma and the Mergui Archipelago. Lower Tenasserim lies apart from the trade and travel routes of the East, while its own productions are too small to bring it into prominence.



It fell to my lot to spend some months in this district while investigating, with my friend and colleague, Mr. James J. Simpson, the pearl fisheries of the Mergui Archipelago on behalf of the Government of India. In attempting to give some insight into this archipelago and its remarkable inhabitants I can choose no more suitable starting point than the town of Mergui, the "big town" of the coast, and the capital of the archipelago, on one of whose islands it stands. Nestling between river and jungle Mergui is half hidden until one comes abreast of it. Unless one arrives on Friday, the mail-boat day, the town seems peacefully asleep in the heavy scent-laden air, and one wonders why so drowsy and quiet a community continues to exist. A mile or more along the shore stretch the brown palm-thatched houses,

among which rise palms and flowering trees, while beyond is the background of towering jungle.

However, Mergui is not the sleepy place that it looks from the sea ; there is plenty of life and stir in its streets and market places. Its bazaar is alive with a glowing panorama of half the races of the East—Chinaman and Burman jostle one another; Madras coolies, Malays, and Siamese are all to be seen, each in his native dress ; while among them move Japanese and Filipinos, both in white ducks, and, the former especially, haughty with their self-assumed superiority, a few wild-looking Selungs clad in the scantiest of raiment, from the islands beyond, and last and least frequent the European. Each element of this cosmopolitan crowd seems in its own way to be busy, for Mergui is a thriving town which is growing year by year. And it does not take the stranger long to find out that the source of this prosperity is the archipelago, and principally its pearl-shell fisheries. There are other trades, it is true ; a few rice mills, some teak and occasional rubber export, and a growing shipment of tin ; but none of these, either in the economy of the town or in the interest aroused, can rival the industry of pearl and pearl-shell fishing, with which of course is allied in minor capacities the trade in bêche-de-mer, turtle shell, edible birds' nests, and other products of the island waters. During the pearling season the talk and gossip are all of the archipelago, of this or that pearl, of a certain diver's luck, or of another's exploits. It is the same wherever there are pearl fisheries : the risk and uncertainty, the strong element of chance which makes a stroke of fabulous luck quite possible any day, have an irresistible appeal, and one whose infection is very contagious.

Leaving Mergui by a narrow channel between the jungle-clad shores of two large islands and past half-a-dozen quaint little fishing villages, we reach the waters of the Mergui Archipelago. For near on three hundred miles this island-studded sea extends from north of Tavoy Point southward to beyond the Anglo-Siamese frontier—an area little short of ten thousand square miles. Among the two hundred islands are numbered those of every size, from mere islets, little more than rocks, to a few of five, ten, or even twenty miles in length, and of every outline from flat sandy cays to hills of several hundred feet. But practically all are covered with dense jungle interwoven with lianas into an almost impenetrable mass. Very generally the islands meet the sea in steeply sloping rocks or in vertical cliffs, but every here and there is a beautiful shelving beach glittering in the sunshine save where the tall jungle trees cast their shadow ; places of idyllic charm in themselves, and doubly so in contrast to the noisome evil-smelling mangrove swamps that normally fringe the mainland. As a rule tropical scenery, more especially on the coasts, is monotonous and often unbeautiful, but here is no sameness ;

the diversified scenery has always some new charm or unlooked-for wonder for the traveller. Yet wild life is scarce but for the troops of monkeys, the harsh-crying hornbills, and the pigeons.

It is not surprising to find most of the islands uninhabited, but there are nevertheless several exceptions, apart from the nomadic fishermen of whom I shall speak later. On Tavoy Island is a large community of Christianised Karens, with a native schoolmaster in their midst. One Sunday when I visited them they held a service in a jungle glade that served for church, and most charming did the congregation of maidens look—for no men attended—all gaily dressed in coloured silk, their black hair decked with orchids.

Many of the islands near the mainland have temporary settlements of Burmese fishermen during the fine season, but during the rains all these are abandoned. Built on stakes above the mud-banks these villages are very picturesque externally, but not nearly so desirable when one enters them. The only means of access is a rickety vertical ladder, the foot of which one reaches by boat. At the top is a frail platform of bamboos, on which numerous huts are built ; at low water the foul smell of the mud pervades the atmosphere, and the eerie sound of the crackling mangrove oysters is ever present, while a false step or too heavy a tread would precipitate one to the mud twenty feet below. The fish are caught in large traps formed by converging lines of stakes, which is a common form in Eastern waters. Among various other stragglers in the archipelago I must make mention of certain Malay fishermen in the south whom the natives insist, and I think with some reason, are more pirates than anything else. In bygone days sailing ships dreaded to be becalmed near these pirate-infested islands ; but while the day of large-scaled robbery is past, in these seas at least, there is plenty of scope for piracy of a meaner sort against the pearling boats and Chinese junks which frequent the archipelago. When I visited that region our Burmese diver and his coolies were only reassured by the presence of a Government launch, and I think they were glad to leave for more northern waters when our work was done. Nor is that an isolated case of fear on the part of the pearl divers.

Of all people to be found among the islands, the most interesting are that strange race of nomadic fishermen known as the Selungs, or sea-gypsies, a people who seldom stray beyond their home in the archipelago, unless a few of the boldest make a visit to Mergui. In cruising through the island group it is not uncommon to catch sight of one or two tiny square-sailed boats hurrying along, or, in rounding the point of an island, to find a small encampment on a sandy beach. But that is about as close as the average sea-gypsy allows one to come. A more timid people can scarcely be found. They live in dread of strangers of any kind, and a

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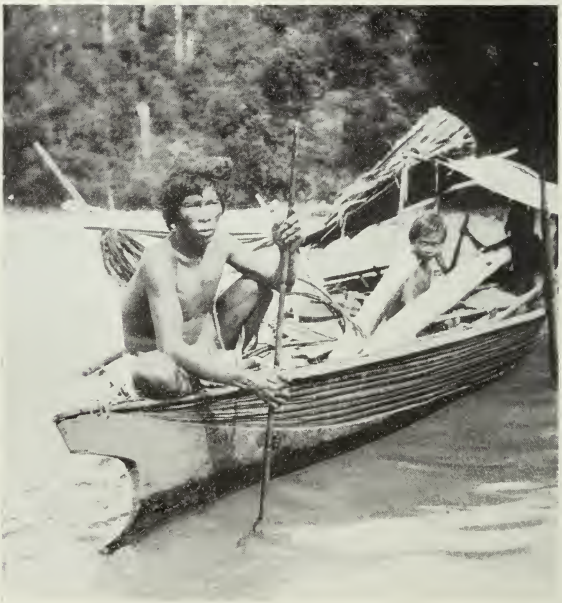
Mergui.



A Selung in his Boat.

steam launch with white men seemed to suggest to them merely pirates of another colour from the Malay dacoits at whose hands they have frequently suffered. As we approached such a beach encampment there was a general stampede, and before we landed there was often not a single human being on the beach—even the dogs turned tail with their masters and vanished into the jungle. On several occasions I found such deserted encampments with boats drawn up on the beach, fires burning, and a meal cooking, but no sign of occupants. I entered the jungle with an interpreter in search, but no trace of them was to be found, though no sooner had we put to sea again than those elusive people once more flocked down to the beach.

On a few occasions, however, I contrived—it might have to be by cajolery or craft—to get at close quarters with the Selungs and to hold converse through an interpreter. Even that was difficult, for they have a language of their own in which my interpreter was not well versed, and it is only a few amongst them who trade with Mergui, or with the rascally Chinese merchants who visit them, that speak Burmese. The children are pitiably timid. I have seen them jump overboard and swim for the shore or break into violent fits of sobbing when we ran alongside the boats. But they listened in amazement to the screech of our launch's steam whistle, and when they saw the propeller revolve neither old nor young could suppress their delight. Despite their savage, gaunt, and even forbidding appearance, the Selungs are invariably peaceful and unaggressive.

Throughout the fine season the Selungs wander through the archipelago in their frail boats, which form their real homes. These boats, about twenty feet long, have a solid dug-out for hull, with upperworks of palm leaf strips lashed to uprights, and made watertight with a coating of dammar. A few seats, a palm leaf awning, and a sail of plaited palm leaf complete the boat. No metal is used in the construction, and the only tool employed is a rough adze ; in fact, beyond their fishing spears and these adzes the Selungs possess no weapons or tools of any sort. Nor is their household property extensive, for to such confirmed nomads property would be a serious hindrance to free movement. A few earthenware cooking pots, two or three bamboo water carriers, some broken crockery (usually " Made in Germany "), and a couple of empty kerosene tins (and where are they not to be found ?) complete the list. Clothes do not trouble the Selungs ; a scanty loin cloth suffices for both sexes, though the younger women wear more when they can get it, and some of the men have adopted the Burmese *lungi*. The only objects they lay great value on are their trident-shaped fishing spears, the iron for which, if not the fashioned spear, they get by barter from the mainland.

The Selungs occupy themselves almost entirely in fishing, or in diving

for various kinds of mother-of-pearl shell, but occasionally they scour the jungle in search of honey, or hunt wild pigs with the aid of their dogs. There are places among the islands where they have planted plantains, mangoes, and pineapples, but they pay little attention to these "gardens," only visiting them at rare intervals. All their energy seems to be absorbed in obtaining the day's scanty living, consisting of fish, oysters, honey, and fruit, with an occasional pig or turtle. I seldom saw in their boats sufficient food for more than the next meal.

During the fine season they pass from island to island, never staying more than a night or two in the same place, but when the stormy weather of the south-west monsoon sets in and fishing operations have perforce to be abandoned, the Selungs betake themselves to sheltered inlets, where they build rude cheerless dwellings in which they pass the months of waiting until the propitious weather comes again. During these summer months of enforced sedentary life they repair their boats, and weave a few palm-leaf mats for use and for sale, all the while, no doubt, dreaming of their liberation when the storms are over. A miserable life it is true, and yet these sea-gypsies seem to be a happy people, and to show no signs of dying out. There must be some nine hundred, I estimated, in the archipelago. With the exception of a few at Junkseylon, on the mainland of the Malay Peninsula, their range is limited to the islands.

Before leaving these strange people I must mention one rather anomalous tribe I visited who seem to have overcome very largely their nomadic propensities, and have formed a permanent settlement on Cantor Island, not far from Mergui. The settlement is not extensive. A square mile or so—the whole island—has been cleared of jungle, and about a dozen families have built moderately substantial huts on the sheltered side. Here I had the pleasure of being presented to the chief, who was very communicative on the subject of his tribe and the archipelago in general. Plantains, pineapples, and cotton trees are cultivated, while, of course, fishing is carried on. A certain amount of barter takes place with Mergui, or with Chinese merchants from whom the Selungs buy rice at exorbitant prices in exchange for cotton pods, fruit, and pearl shell. The Cantor Island community, the only one I believe with a chief, have progressed considerably over their purely nomadic brethren. They have a sufficiency of food, a surplus of produce for barter, and they are less suspicious of strangers than the rest of the race.

Tropical islands and their sheltered waters yield a number of economic products, such as bêche-de-mer, turtle eggs, tortoise shell, edible birds' nests, and pearl shell. The Mergui Archipelago has a trade in all these, but the only one I can speak of here is the pearl and mother-of-pearl shell industry. The shell fished is the giant mother-of-pearl oyster, and the

conditions of the industry are rather exceptional, inasmuch as the shell is now only to be found in deep water, which not only precludes all naked diving, but demands divers of more than ordinary skill and endurance. The Mergui divers, who are all Japanese, Malays, Filipinos, or rarely Burmese and Chinese, commonly descend to twenty-eight or twenty-nine fathoms, while one or two Japanese told me they could go even a fathom deeper, but this is very dangerous, and often results in paralysis.

Of course a diver who can descend even a few feet lower than the rest is in great demand among the pump-owners. He can practically dictate his terms and get anything in reason, and even a little more. When a "twenty-nine fathom" man happens to be a Jap his swagger and arrogant offensiveness would be hard to beat, but divers of other nationalities, except when under the influence of their favourite brandy, are pleasant and friendly men. They almost all speak English, sometimes more virile than fluent, and ashore wear European dress, which is not considered complete without a black coral walking stick. When at work they demand for themselves and their tenders what they are pleased to call European rations, which consist of fresh meat, tinned foods, especially sardines, and invariably a bottle or two of brandy. The life is undoubtedly risky, but the pay is good and enables the diver during the wet season to live in idleness and luxury. A first-class man, moreover, is often paid a retaining fee during the "off" season.

The pearling fleet consists of some eighty small schooners, which work on various banks throughout the archipelago, returning every alternate spring-tide season when diving is impossible, to refit at Mergui. On board each boat the owner has a representative who opens the shells and collects the pearls, when they occur. This is an exciting moment. As often as not there may be no pearls, or none of any great value, but every now and then a large one of rare lustre and perfect shape is found. Often, however, the pearls do not occur free in the oyster, but are contained in "blisters" on the mother-of-pearl. Now, since these blisters do not invariably contain pearls, there is a unique opportunity for a little gambling. The blister is often offered for sale unopened, and a dealer will buy it on the chance of its containing a valuable pearl. Just before I came to Mergui three "sportsmen" had formed a syndicate to buy a large unopened blister, which they acquired for a relatively small sum. On opening it they found two pearls whose total value was over £3,300. This, I think, constitutes a record for Mergui, but gems worth £100 or £200 are not seldom found. Considering the small number of days in the year —only about seventy—on which work is possible on account of tides and weather, I think one may look upon the Mergui pearl fisheries as fairly remunerative to all concerned. They are not perhaps what they once were, but there is no reason why, with careful application of scientific

knowledge and a little outlay, they should not give increased returns in the future.

In leaving the Mergui Archipelago I must say a word about the R.I.M.S. *Investigator* (Commander W. G. Beauchamp, R.I.M.), the ship in which most of my journeys through the island waters were made. No one whose work has lain in Indian lands but has heard her name, while in the world of science she is famous. For over twenty-seven years the *Investigator* has pursued her work of surveying, sounding, and deep-sea dredging in Indian waters from Aden and the Persian Gulf to Mergui, until, I may safely say, most of our knowledge of Indian waters is due to her. This voyage in the Mergui Archipelago was her last service, for the old *Investigator's* day is over, and the shipbreaking yard will shortly claim her, while a new, better-equipped, faster and, be it said, more seaworthy *Investigator* continues the work. Yet it will be long before the fine new ship, the third of her name, becomes as familiar in Indian ports, as integral a part of Indian seas, as her predecessor, the picturesque and leisurely wooden paddle-boat.

Selung Settlement on Cantor Island.

Selung Women and Children.

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Life in Northernmost Finland.

By KNUD RASMUSSEN.

North of all other men, in a valley where Norway and Finland meet in undulations of snow-enfolded fir forest, merry Guolna has "pitched his tent" for life. His tent is a little house, and he owns a good deal of indifferent land and a few small, rough-coated cows, which feed him and his wife, Spring-Brita. The wild desolate forest stretches for miles across the country, and provides him in abundance with all the firewood that his cold house can consume.

There are many queer rumours afloat about Guolna, whose nearest neighbour lives forty miles away. He arrived many years ago from the south to seek for solitude, and he found it. There were those who whispered that he had taken part in something that was best not talked of—a political conspiracy, or the like. But perhaps all the gossip arose from the fact that Guolna never sought company. He did not care to leave his own land. But any traveller whose route brought him over Vyotkajärvi was welcomed as a friend of the house.

We had come a long way. We had been driving the whole of the icy-cold day, with its warming gleam of sunshine towards noon and its fiery sunset clouds towards dusk. Now darkness had fallen over the hills, the white arctic darkness, with flashes of the Northern lights darting across the waste. Our hay-filled runner sledge, as warm as a bed, skimmed along the frozen snow. We were lying in the bottom with a bristly elk-skin over us; our pipes were lighted, and we were silently enjoying the great peace around us and the sedate trot of the horse.

All at once the horse laid his ears back and neighed in alarm. Jumping up, our eyes searching the darkness, we saw a herd of reindeer spring out of the wood and stop just in our path. It was as if an invisible hand had pushed the trees in the wood aside and dropped the animals down before us, so suddenly and so silently had they come. There they stood, huddled together, and stared at us fearfully. A mighty bull in the midst of the herd towered above the rest. He tossed his head contemptuously, shook his huge antlers, and coughed reproach at us. I saw, in the light of the Aurora Borealis, that he was wounded in the forehead, and bleeding from the roots of his antlers. The cows and calves crowded round him, the smallest of the calves swaying about in an irresistibly comic manner on their little legs, their poor thin flanks all of a quiver. The bull seemed to be accusing us, as he stood there, piercing us with his brilliant despairing gaze. Only when the horse was right upon

him did he spring aside into the deep snow, and then we heard once more the peculiar mysterious crackling of hoofs as the forest swallowed up the leaping herd again.

Then the horse reared in the middle of the track and stopped; a calf lay on its back just in front, its tiny legs sticking up. Its comrades had knocked it over in their flight, and it was too exhausted by hunger to rise. We got out of the sledge and went up to it. It lifted its head slowly and looked at us with its great, tired, dimming eyes, uttering never a sound as we lifted it and carried it to the edge of the wood. No human creature ever dies so quietly and beautifully as a reindeer. The calf was young and fragile; its little legs had not been able to kick the hard, deep snow from the moss it should have fed upon. And so it had starved. And now its companions had abandoned it.

It was late in the evening before we came to people, warmth, and food. The horse, which had been wading slowly through the snow, neighed and broke into a trot; a little farther on, a ray of light shone through the trees, and we could smell smoke. It was Guolna's house, and he was already outside in the snow to welcome us. The horse was led into the stable, and, white with hoar-frost and steaming from the cold outside, we entered the warm sitting-room. Travelling Laps lay round the blazing hearth, revelling in the heat. A filthy old scion of nomads was on his knees in front of the fireplace, with his gnarled hands outstretched to the flame. Our faces tingled with the genial warmth. The very atmosphere reeked of old legends and fairy tales and heathen superstition, for which the ancient, substantial room, with its smoked beams and its primitive fireplace, flinging a broad fringe of light and warmth around, seemed the very setting. And the shaggy, fur-clad figures crowding about the hearth, with their frost-bitten, silent faces, that long years of hardship had set in grave folds, fitted no less appropriately into the scene.

Fat Brita ran forward and embraced us, as is the custom here in welcoming guests. Then, while the three-legged coffee-pot was hung over the fire, we threw off our outer garments. The coffee was soon made and poured, steaming, into white bowls. We drank it with voluptuous satisfaction, and conversation soon grew lively. Guolna proposed a visit to the bathroom, where the fire had just been lighted. "We shall be able to eat more afterwards, and it will be good for the itch," he said, smiling. It is impossible, up here, to escape altogether the little parasites that are so fond of human blood though there are few races so cleanly as the Finns. Every little peasant farm has its bathroom, and in it baths are taken several times a week, all through the winter.

We pulled off our clothes inside, in the general room, and stalked off —Guolna, an old ptarmigan hunter, Kuhmenen, and I—into the snow and a temperature of thirty-six degrees below zero. A light breeze was

blowing from the north, and the icy wind was like a cold suit of mail round our naked bodies. The bathroom was a hundred yards or so away from the house. It was a little shed of rough boards, and had a stove in it built into the wall with stones. A huge fire was burning, and when we threw cold water on the stones there rose from them clouds of hot steam that made us gasp for breath. Along the wall were raised shelves on which we could lie and pant, while the snow dripped down on our steaming bodies. The temperature was one hundred and forty-five degrees.

Suddenly Guolna sprang up, flung the door wide open, and leaped out into the snow. I was drowsy with the heat, and half fancied some man had jumped over a precipice. What was happening to Guolna? I could not see. A rush of cold air filled the room and almost took my breath away. Then I, too, sprang up and ran out. And behold, there was Guolna swimming vigorously in the snow, like a white whale cutting through the water.

"Ho! ho!" he shouted; "come on! come on!"

After lying half-an-hour on our shelves in the boiling heat inside, with muscles relaxed, we now stood naked in a temperature of thirty-six degrees below zero. Never, in my whole life, have I experienced such a delightful muscular sensation as when, urged by a frolicsome whim, I made off barefooted and naked over the frozen fields of snow. Guolna laughed and followed, and, like two swift Greek runners, we dashed on through the cold and dark. The snow beneath our feet did not feel cold at all, and we ran, under the Northern Lights, like two ghosts, scarcely touching the ground. We took a leap upwards, and with outstretched arms ploughed side by side into a huge freshly-formed snowdrift. We swam, laughing, out of the soft snow, and even before we were fully cool again found ourselves back in the bathroom, where old Kuhmenen was keeping up fire and steam. We lay down on our shelves again for a few minutes, rubbed the perspiration from our bodies with snow, and the bath was over.

That is how people wash themselves in Finland in the winter, and a bath of that sort is an experience to be remembered.

When we returned to the hut we sat for a time before putting on our clothes, neither the wife nor the girls being in the least disconcerted. It was the only room there was, and Finns never dress themselves at once after a bath. They gave us coffee again, and the warm liquid was comforting and loosened our tongues. It was time, too, for the boiled reindeer to make its appearance. Ah! after a long and fatiguing journey how one's delight at being alive surges gratefully up during a meal! One's thoughts take many a leap across time and space, and even the taciturn open their mouths and speak. It is a thawing of the soul, a

bracing up of the will; one forms fresh resolutions, and the elusive future beckons, while excitement at dawning experiences and the incalculableness of shifting fortune takes possession of one.

Guolna was speaking, almost shouting, in the full vigour of muscular well-being. He was of the genuine Finnish type, with a nose like a clenched fist, a huge jaw, and long dishevelled hair. He was telling about a man who had recently been the guest of the pastor in the nearest little town. He had arrived, driving, one evening quite alone, and had said that he was a pastor from the south. The Finnish pastor took him in as a dear welcome guest, and he received the best room in the parsonage. The two men became great friends, and everyone in the house was charmed with the gay and handsome newcomer. Then Sunday came. The stranger borrowed the pastor's cassock and preached such a sermon that there was not a dry eye in the church, and after that people talked a great deal about the extraordinary man who won all hearts.

At last he went away again alone, as he had come. But there fell a terrific snowstorm that day, and when it was over, a passing sledge found the strange pastor half-dead in a snowdrift, and drove him back to the village. The people at the minister's house nursed him, but gangrene attacked his feet and he lost both legs. His condition was hopeless, and a strange uneasiness seemed to have taken possession of him. Then one day he called the pastor into his room and confessed that he was a murderer, wanted by the police. And as soon as he had made his confession he died.

Many strange things come to pass in this world, and up here, in these desolate plains even, there is scope for extraordinary happenings.

The fire has burnt low and we are sitting in semi-darkness. A burning fir cone has been stuck up in one corner, and its restless flame flares up, throwing a flickering shadow over the hard immobile faces that look as if carven in oak. An old Lap who, as we hear afterwards, has surrendered his property to his heirs, minus a small pension which he reserves, strikes up a long, dragging hymn-tune from a corner. He is growing childish, and thinks it is always summer. They have made him a sort of box-bed near the hearth, and in it he eats and sleeps and spends his days. When the fire blazes up and warms his wrinkled visage he thinks it is the sun shining, and he half rises in his old wooden box, and calls out for fresh flowers.

Yes, life is many-coloured, and full of caprice.

Good-night, Guolna!

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Myself as Wood-chopper.

A Grading Team.

The British Emigrant in Canada.

I.—The Dark Side.

By A. D. CHALMERS.

In the middle of July, 1907, my brother and I left London for British Columbia, where my father had obtained for us the promise of work from a man of considerable prominence in London, who had control of a large ranch in the Okanagan Valley.

After a delay of ten days in Winnipeg, waiting impatiently for our baggage, which we were informed had got shunted on to a siding between Montreal and Winnipeg, and which eventually arrived with part of the contents badly damaged by water, we left for the Okanagan Valley, and for three days were tearing on our way to the great West. On reaching Sychamous Junction, we changed and took the through train to Vernon, where we at once hired a "rig"* in which to convey ourselves and our baggage to Mr. Z's ranch. I shall not easily forget the depressing effect of that drive. It was a hot, sultry day, the dust lay inches thick in the road, and swarms of grasshoppers aroused by our approach flew up on either side. Instead of the fresh green foliage and trees over-laden with fruit which I had expected to see, barren hills frowned down upon us, shutting in the view. We soon reached our destination, and on ringing the bell a Japanese boy came to the door; we asked him if Mr. Z was in, and were shown into the dining-room. We had scarcely time to take stock of our surroundings before Mr. Z entered the room. After greeting us, he asked us if we would have lunch, which we answered in the affirmative. During our meal Mr. Z asked after our journey and one thing and another, and all the time we were longing to know about our work and when we should begin. As soon as we had finished he rose from his seat. He was a tall, gaunt-looking man with drooping shoulders, and wore a pair of riding breeches and a loose-fitting coat. Thrusting his hands into his pockets he cleared his throat and said: "Well! boys, I guess you've caught me up a tree! I can't give you any work on the ranch, but if you like I'll give you a job at hoeing with the Chinamen for three weeks. Of course you have had no experience, so I cannot pay you wages, but I will give you your board. If you decide to stop, you had better drive into town, and get some stuff at the Hudson's Bay stores. Let me see; you'll want two pairs of blankets, a mattress a-piece, and a tent; they will come to about thirty-five dollars."

* This word describes a vehicle of any kind in Canada.

After having informed us of a hotel to stay at, Mr. Z told us he would ring us up on the telephone that night, and arrange about bringing the outfit to the ranch. We thanked him, but once outside we made up our minds that as he could not give us the work we had been led to expect, we would go elsewhere, and as soon as Mr. X, who had driven us out, offered us a job at his place, we accepted. He told us we could make two dollars a day very easily by felling trees, sawing them up, and splitting them into cordwood, and we then drove with him into town. As the horses had to be rested and watered, we had time to get some provisions, which consisted of a sack of flour, six pounds of bacon, a large bag of beans, and some condensed coffee. As soon as we had purchased these necessaries we put the horses in and drove off.

The rig in which we were riding resembled a brewer's dray, the distinction being the long poles driven into the sides and back, which it was necessary to have for hauling cordwood into town. The drive of ten miles to a little place near Larkin was not very stimulating. On each side of us spread a vast expanse of ground with not a vestige of grass or vegetation of any description, save here and there patches of dry weeds. However, our thoughts were not occupied with the scenery, as with Mr. X somewhat the worse for drink (his excuse being that as he only came into town once every three weeks or so, he must sample the whisky !), it was with great difficulty that we managed to keep our seats.

At last, after a very tiring drive, we began to mount higher and higher, and finally we turned off the road and headed for the woods, soon coming in sight of Mr. X's house. I call it a house, but in reality it was a log-shack about twenty-four feet by twelve feet, standing on a slant in a small clearing, whilst all around rose firs, cedars, maples, etc. We did not waste time but at once unloaded our goods. Mr. X then showed us our home, which had been obscured from sight by a mass of saplings ; this was another shack similar to Mr. X's, except that it was much smaller and had no windows. I must confess that the inside did not look particularly inviting ; cobwebs adorned the ceiling and walls, whilst a pile of straw in one corner did duty as a bed. Pieces of stove-pipe, harness, etc., lay strewn about the floor in endless confusion, and a dilapidated stove stood in another corner. When Mr. X had left us we started to put things a bit straight, and this being done we lit the stove and soon had the kettle boiling ; an old tin can which I found on the floor, washed out and cleaned, served as a saucepan, and after a little time we made a hearty meal.

About nine o'clock Mr. X came in and squatted on one of the trunks. Chewing a plug of tobacco and expectorating on the floor he told us that he wanted us to be up at six o'clock next morning, and

having made one or two more remarks as to the nature of our work he departed.

The next day we were up in time, and got our breakfast ready. About half-past six Mr. X arrived, a cross-cut saw, flung over his shoulder, whilst in his hand he held a hammer and wedge. We were soon on our way, and for some time walked in single file. Not a sound broke the stillness but the cry of a bird, or the chattering of a squirrel. At last we came to a halt in front of a pile of wood which Mr. X had previously cut, and which was ready to be loaded into the rig and taken into Vernon for sale. There were about three cords of wood stacked up. For the benefit of those who have not had the pleasure of association with the backwoods, it would be well to explain that a cord of wood stands four feet high and measures eight feet in length. After explaining the nature of our duties to us Mr. X was not long in seeing they were carried into effect. A huge fir, about four feet in circumference, was the object of our attack, and in a few moments a cleft sufficiently wide for the purpose was hewn out and then the cross-cut saw came into play. This was a more difficult matter than the mere hacking of the tree, and it was some time before the fir came crashing to the ground. In this way tree after tree was felled, Mr. X leaving us to do the felling as soon as we had got into the swing of it, while he contented himself with limbing them. About six trees being down we proceeded to saw them into logs about eighteen inches long. This was no easy task, especially as the heat had gradually been increasing until it became almost unbearable, and at last I was obliged to walk back to the well and get a can of water. I learned afterwards that the temperature had reached 114° in the shade. About noon, we knocked off work and went to dinner. This consisted of baked beans and bread. Dinner over, we returned and once more resumed our work. By six o'clock we had cut two cords of wood, for which Mr. X said he would pay us when he went into town.

For ten days we worked at this without a break, and on the eleventh day Mr. X went into town only to return the worse for drink and without a red cent. My brother and I had cut about ten cords between us, and with what he himself had cut he had over thirteen cords, which he sold at five dollars per cord. When we asked him for our pay he replied that he would see us later ; we thought differently, however, and it ended by his driving us into Vernon that evening. Of course, we didn't get our money, and, by way of adding insult to injury, Mr. X even tried to make us pay $2-50 for taking us into town !

The next day we put on overalls, black shirts and hats, and started out to look for work. This was on August 15th. We heard that there was work to be got on one of the C.P.R. Lake boats which ply between the Okanagan Landing and Penticton, a small place on the south end of the

Okanagan Lake, with a population of about 450 people, and we at once "hit the trail," or in other words walked along the rails from Vernon to the Okanagan Landing, a distance of five miles. We arrived about half-past ten and found that the boats left at eleven o'clock. We at once tackled the mate for a job, but he only had room for one man, so I took it, my brother going back to Vernon. I started in at once, unloading crates of tomatoes from the boat to the freight cars which run right along the wharf opposite the boat.

This, my first experience of trucking, was marked by what might have been a nasty accident. It should be explained that a plank measuring about fourteen feet in length and about three feet in breadth is run out from the freight car on to a trestle placed on the track, and another plank is put in such a position that one end rests on the trestle and the other end reaches the boat, the two planks being at an angle of 45°. I had five sacks of wheat each weighing one hundred pounds on my truck, and was just at the door of the freight car. The top sack rested on the handles of the truck, so that I was obliged to hold the handles up in order to check the weight, and as I was going out I pulled the truck up the toe board, and thence on to the plank. Unfortunately for me the edge of the plank, being only about three inches inside the car, was pushed forward, with the result that the plank, trestle, and all, myself included, were precipitated on to the rails. Luckily I let go of the truck and fell flat, so that the handles went backwards, and the truck remained in an upright position, I myself escaping with a cut and a severe shaking. The mate told me to go to the Chinese cook, who after grumbling in Chinese and pigeon English produced a piece of rag and hastily bound up the cut.

By this time, all was unloaded, and we hauled the planks aboard and made ready to start. Our first stop was at a little place called Ewings Landing, where we delivered the mails and some provisions. Then we ran on to Gellatly's Landing, a place kept by a Scotchman who had lived there for fifteen years. The land was well cultivated, and he was then doing well, sending up between two thousand and three thousand cases of tomatoes a week. Two friends of mine who went there were worked from six in the morning until half-past ten at night. One other white man was employed, the rest were Chinamen. From Gellatly's we started for Kelowna, or the "Orchard City," which is half-way up the lake. Meanwhile we had dinner, consisting of beef, potatoes, cabbage, and pumpkin or lemon pie, after which we set to work to wash the paint, and had just finished this task when we arrived at Kelowna. The town has about eight hundred inhabitants, and is the centre of a large fruit trade. After Kelowna came Peachland and Summerland, both situated in very hilly country. Peachland is distinguished in one respect from the other little places along the lake shore. It is the only temperance

town in the Okanagan Valley. No intoxicating liquors of any description are sold, which is a very good thing, as there are several logging camps in the neighbourhood. If these camps are near a town where liquor is to be had, the loggers come down to "celebrate" on a certain day, which means that they "blow in" all their money in one night, then return to camp and work perhaps for five or six months, when they go into town again and do the same thing.

When we had cleared the cargo off we washed down the decks, and after this were at liberty to do what we liked. So after taking in Summerland, which I was able to do without moving from the deck, by just casting my eye over the ground and up the hills, I started to get into bed, otherwise a truck, with my coat for a pillow and a blanket on top. All the time the dynamo was buzzing away, but I made the best of it and managed to get some rest. About half-past five we were up again, and the ropes being cast off we got clear and proceeded up the lake.

After ten days of this sort of work—the only variation being that sometimes there was so much to do that we were kept working from half-past five or six one morning until two o'clock the next morning, in which case we only got about three hours' sleep—I heard at the Okanagan Landing that there were two vacancies on the other and larger lake boat, the *Okanagan*, and immediately sent up word to my brother by the conductor on the train which runs from Vernon to the Okanagan Landing. My brother came down at once, and arrangements being made for my transfer, we both started work on the *Okanagan*. The only difference in the work was that instead of having Dagoes (Italians) to coal up the boat, as they did on the smaller one, they left it for the truckers to do. Two men would go into the coal car to shovel, while one wheeled the barrow. As my brother and I had just started we had to go into the coal car straightaway. If you can picture two men, the sun beating down on their heads, their faces, hands and arms, likewise their clothes, as black as ink, water absolutely pouring off them in their endeavours to get over four tons of coal loaded into the boat in two hours, you will have a very good idea of what hard work really is.

For a month we worked on the boat, and at the end of that time we heard of a job in a logging camp at better wages, which we decided to take. The "boss," or manager, drove us up to the camp, which was situated some few miles outside Vernon, in his buggy. After having driven through some very thick brush, we suddenly burst into the open, and turning up a rugged path, or rather cattle track, we came in sight of the "bunk house." This is a large building composed entirely of logs, and having a door in the centre. On entering we found that there were forty bunks, arranged one above the other, each having about enough room for two men to sleep in. They were all made of rough wood, with a straw

mattress to lie on. As we were proceeding to put things straight the whistle blew, and soon the loggers came pouring in like a swarm of bees. Some of them were tall gaunt men, rough and ready, but good-hearted, whilst others were continually blaspheming and making coarse jokes. Soon the tea bell rang, and we all filed into the shack, sitting down in rows at long tables. Here we once again had Chinese cooking. Large notices posted on the walls forbade any talking, this measure being taken to prevent the loggers from using foul language at meals. Tea being finished, we returned to the bunk-house, where for some time we listened to a gramaphone, which was sadly in need of repair, most of the records being cracked. After we had tried to appreciate the music for some time we turned into our bunk and were soon asleep—but not for long. Waking and striking a match we found that we had company in our bunks. It was a very numerous company, so rolling out we sat up by the fire all night.

The next day we were up at six, and when we related our experiences of the night before to the loggers, a roar of laughter greeted us. I then learned that it was considered rank idiocy not to encourage such company, it being considered very healthy to keep some about you. I will not dwell on the inside life of a logging camp. I only mention the above experience in order that youths with ideas of emigrating may know what they are up against should they seek that kind of work. The first morning, as soon as we had made ourselves more comfortable and had got dressed, we had breakfast, which consisted of black coffee, porridge (or "mush," as it is called out West), bacon and hot cakes. Then we were started into the bush, and were told that we had to saw up a hundred logs, ranging from seventeen to twenty-five inches in length, and about two to three feet in circumference, per day. We had fifteen trees down by noon, knocked off for lunch and resumed work at one o'clock, the temperature being between 100° and 110° in the shade. About three o'clock we stopped and were compelled to take a rest. As we were sitting down the foreman came up and asked us why the —— we were not working. When we told him in concise words the reason, he walked off. The same evening after supper we were told our work would be in the mill next day. We spread our rugs under a tree and slept beneath the stars until six in the morning, when once more the whistle started us to breakfast.

After breakfast I was put on to the "overflow," my duty being to stand near the chute in the mill, on a pile of sawdust about twenty feet high, a barrow being placed underneath the chute, to catch the sawdust from the overflow. As soon as the barrow was filled I had to run hard along planks which were placed on the pile, and when I came to the end tip up the barrow and empty the contents. This was not easy, as no sooner

A C.P.R. Freight Boat for Lake Traffic.

A View from the Canadian Pacific Railway, near Field.

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had I turned up the barrow than it ran over the edge, dragging me after it. However, I managed to slide down to the ground, and after shaking the dust off, and rubbing my eyes, I wheeled the barrow right round and up the other side, to find the other barrow full and overflowing. I soon had the first barrow in position again under the chute, and ran with the other one, only to meet with the same experience ; but after some time I found that by putting on an extra spurt I could just manage to keep the thing going. At lunch time we rested again, and afterwards continued in the same way. That evening when I turned in I felt ill, and the next day I discovered that I had blood poisoning, so that I had to be taken to the hospital. Here I was delighted, in spite of my sickness, to find everything beautifully clean, and I welcomed with a sigh the white sheets. I experienced with joy a nice hot bath, a great luxury in the small towns out West. Everything was well looked after, and I received the kindest attention at the hands of the nurses. The charge without the doctor was one dollar per day, and I was glad to find myself making big steps on the way to recovery. After eight days I managed to get up, and it was not long before I was on my way to the Okanagan Valley, to try the boat once more.

The following day my brother came down, and we were both lucky to get our old places on the *Okanagan.* For about two months we worked on in the same way. Soon the snow began to fall, and it began to freeze hard ; then one day a wire came from Nelson, instructing the captain to tie up the *Aberdeen* as she was not making the expenses it cost to run her. This meant that all the men were out of a job, and were obliged to look for work elsewhere. This was impossible to get ; the crash was coming, all around mills and mines were closing up, and the small towns were beginning to fill with unemployed—loggers, miners, teamsters, etc., who stood huddled in groups about the streets, waiting to be the first to get work if there was any to be got. The men off the *Aberdeen* were obliged to go across the lake to a deserted mine, where they slept under cover, cooking their own food and keeping themselves as best they could.

Then the captain of our boat received orders to make three trips a week. The result was that we had double the work to do; the cargo accumulated on the wharf, we had more coal to take in order to keep the boat going for three days, and instead of putting on more men to grapple with the work they began to lay us off, until we had but six or seven men left. Soon after this we had an open car of coal to put on, and it was the turn of my brother and myself to go in the car. Three feet of snow had to be cleared off first. When this had been removed we encountered with our shovels what seemed to be iron. We dug into it again and again, endeavouring to move the solid mass, but it was useless ; the coal was

frozen hard, and we were at last obliged to get crowbars and force a passage through, and even then it was difficult work.

About a week after this a certain gentleman from Nelson came up to the *Okanagan* landing and gave instructions to "fire," or lay off, nearly all of us, my brother and myself included. "We must cut down expenses," he said.

The same day that we got laid off we went down to Penticton and "batched" it. For some months all went well; we got a little log shack for six dollars a month and bought a small camp stove, and settled down to await the arrival of work. I made the acquaintance of a very funny old fellow in Penticton, who it was said was never seen outside his door; whether this was so or not, it is true that he had never set foot outside the town itself. I was talking to him one day, and he stopped chewing his plug, turned round to me and said: "Say, stranger, what do you fellows do with yourself all day on Sunday in London; do you walk up and down the Main Street?"

After we had put in some months doing nothing, and as we saw not a chance of getting anything for months to come, we consulted our cash-box, only to find that our earnings were assuming infinitesimal proportions. We had heard a lot about Vancouver, and found that we had enough with a few dollars over to take us there, so packing up our belongings we started off. The scenery along the railway was magnificent, in fact it was the first scenery worthy of note that I had observed in Canada.

On our arrival in Vancouver I liked the look of the town far better than any I had seen down East. Its appearance was far cleaner and the streets were wider. We soon learned, however, that things were in a shocking state there. Thousands of men walked the streets, and "hold-ups" occurred frequently. In one case a man was held up in broad daylight in one of the principal streets and relieved of his money. At the docks men were packed together in hundreds around the freight-sheds looking for work, whilst the trains brought in hundreds more. For the first fortnight I went down to the freight sheds of the C.P.R. every day at eight o'clock in the morning trying to get a job at trucking, but I was only one of many and met with no success. When the foreman came he always greeted us with "No men this morning." He was laying men off, not taking them on. On one occasion I walked from Kitsilano to Eburne, a distance of fifteen miles, and went to the postmaster, got from him all the names of the farmers around that district, and walked another five miles, visiting each farm in turn, but I had no luck again. They were employing Japs and Chinamen in preference to the white man. "It's this way," said one farmer to me; "we can employ a Chinaman at a dollar a day all the year round. If we took you on at a dollar a day and you heard of a job at two dollars or two-and-a-half dollars per day, you

would leave ; but the Chinaman will stay and work all the year round, that is why I guess we give him the preference."

There are ten thousand Chinamen in Vancouver alone. On one occasion I went with a man who had influence to visit "China Town." We went all through the opium and gambling dens, then visited the Temple, which was very interesting, and afterwards the jewellery shops. One shop we went into was filled with blocks of gold, out of which expert workmen turned filigree card-cases, etc., by the score. My guide knew the head man very well and took to him all the rich people who visited the city to buy his goods. The Chinaman on request showed me a book in which were his receipts for the last year, amounting to thirty-one thousand dollars.

After trying our hands at any odd jobs we could get, as, for instance, blacking boots, which I did to earn a meal, and after going a day at a time without food, we began to feel pretty hopeless, and were thankful when our people wired us to come home, sending the necessary fares. No one who has not had a similar experience can imagine how we felt when we received the wire. I might add here that I obtained work within ten days of my return, and though the pay is not so large as in Canada, it is relatively as remunerative, the prices of food, etc., here being so much less.

In conclusion, I should like to tell of a pathetic incident we witnessed coming home on the train. A couple of keepers got in with five lunatics, who were being sent back to England. One poor young fellow of twenty who had only been in Canada a few months had fallen ill while working in a logging camp. He was neglected, and had gone out of his mind, whilst the other cases were mostly all of a similar character. These poor idiots were being sent home, third class; one was so weak he could not stand. They had two meals a day, one at half-past seven and one at six o'clock. I afterwards learned that the keeper had been allowed money to feed them in the dining car, as they were all harmless, but he used to buy some bread and black sausage to feed them on, and saved the balance for himself.

Side Lights on the Russo-Japanese War.

By Lieut.-Col. A. C. YATE.

Though the Russo-Japanese War is now happily a thing of the past, a brief account of a journey from Calcutta to Canada in the spring of 1905, when the Russian fleet under Admiral Rozhdestvensky appeared in Pacific waters, may still retain some interest, an interest enhanced in some measure by the recent death of that Admiral at the comparatively early age of sixty.

At the beginning of March, 1905, when I vacated the command of my regiment, the fate of the Russian fleet was still in the womb of the future. The civilised world was awaiting with keen intensity the result of the impending engagement between the naval forces commanded respectively by Togo and Rozhdestvensky. It was felt that despite the hitherto victorious career of the Japanese arms, Russia might still save the situation if her navy could regain the command of the sea. To regain it was Rozhdestvensky's duty. To retain it was Togo's task. A theatre of war has ever attractions, and, apart from such attractions, I had other very good reasons for wishing to revisit the Straits Settlements, China, Japan, and Canada. Accordingly, after attending to some work on behalf of the St. John Ambulance Association, I sailed from Calcutta for the Far East at the end of March on board the *Namsang*.

Just seven years before, in the spring of 1898, I followed the same route as that of which I am now about to write. My first voyage was coincident with the Russian seizure of Port Arthur, my second with the Japanese capture of that port. On both occasions the China Seas were the centre of the political cyclone of the moment. In 1898 I had a spare fortnight for a run from Shanghai to Peking and back. The blended pleasures and pains of that trip are still fresh in my memory; and later, during the Boxer troubles, the knowledge then acquired stood me in good stead. It was worth the discomforts of small coasting steamers, the hours spent aground on the Taku bar in a grimy crowded little Chinese launch, the gale in Chifu Harbour, the bitter cold of the Gulf of Pechili, the trials of Chinese railways and the jolting of Chinese pony-carts, and last, not least, the perfumes of Peking.

In April, 1905, the *Namsang* pursued its even course toward the Malacca Strait uninterrupted by any incident more exciting than a signal from a native sailing craft which reported that the crew was short of food and water. Our captain hove to and sent them both. I ventured to hint

River View at Saigon.

Native Boats, Saigon.

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that his generosity might be misplaced. He told me that a prompt compliance, in moderation, with such a demand was simpler and much more economical than any delay in search of truth. At Penang we heard nothing about the Russian fleet, but on the 8th April when the Singapore pilot came on board he informed us that the British India Mail-boat *Tara* had on the previous afternoon sighted the fleet in the Malacca Strait steaming towards Singapore. Early on the 8th the Russian Consul and the representatives of the Press started in launches to meet the fleet on which depended the issue of the Russo-Japanese War. I myself was a guest at lunch that day at the Singapore Club, and from its verandah, amid a crowd of merchants, civilians, sailors and soldiers, I saw the fleet pass by. It was moving sluggishly along at a distance of four miles. Only a naval expert with a powerful telescope could have made of that fleet an instructive study. To most of us it was a mere spectacle. H.M.S. *Amphitrite* lay some three miles out from the pier in front of the Club, and from her decks no doubt information both interesting and instructive was being obtained. That, however, was caviare to the general. It was the duty of the local newspapers to enlighten the public of the Malay Peninsula, and on Monday, the 10th, one of them did so after the journalistic fashion of the day :—

THE BALTICKERS.
MOST MAGNIFICENT SPECTACLE SINCE
THE ARMADA.
FORTY-FOUR MIGHTY VESSELS IN BATTLE ARRAY!

The Duke of Medina Sidonia, failure as he was, would rise in protest against any comparison between his Armada and the lifeless procession which we witnessed from the Club verandah. The fleet comprised, one battleship, thirteen cruisers (many of them unarmoured), seven torpedo boats, one hospital ship, eleven supply vessels, fifteen colliers, and one salvage ship—total forty-nine, not one being "mighty" or in "battle array." The pick of the Russian fleet under Rozhdestvensky, I heard, was not there, and Nebogatoff's squadron had only just left Jibutil. My cabin companion on the *Empress of India* from Hong Kong to Vancouver, Count Keller, a lieutenant in the Russian Navy who had served on board the *Pobieda* and subsequently on shore in defence of Port Arthur, told me positively that Rozhdestvensky was with the fleet which defiled past Singapore on the 8th of April. It matters little now whether he was there or not. His best ships were not there. It is noteworthy that when I visited the Pacific Seas in 1898 the Russian Pacific Squadron had the reputation, according to what was told me, of being, next to the British fleet, the most efficient naval force in the China Seas. I heard, however, a very different opinion from an officer of one of His Majesty's ships

stationed in the Gulf of Suez in 1904. He stated that on several occasions he had watched the gunnery practice of Russian ships, and that the inaccuracy of it exceeded belief. But at the time about which I am writing, even in the best-informed quarters, the issue of an engagement between the Russian and Japanese fleets was considered to be doubtful, and it is impossible not to respect the slow tenacity with which the Baltic fleet wended its weary course from the North Sea, round the Cape, and across the Indian Ocean, shunning beaten tracks, to the Pacific waters. Looking back now on the past we seem to see it moving doggedly, determinedly, to its fate.

My brief stay in Singapore from April 8th to 11th let me learn one little incident that sheds just a gleam of romance on the dreary history of the Baltic fleet. On the night of April 7th, about eleven o'clock, a Russian sailor named Markoff fell overboard from the *Admiral Nachimoff*, then just off the port of Malacca. Markoff's first effort was to swim into the zone of the search lights of the fleet. He failed, however, to attract attention. After a time he came across a piece of plank about three feet long by nine inches wide, and clinging to this he divested himself of all his clothes and so remained till daylight. The water was warm, as it always is in that latitude. Soon after daybreak several fishing boats manned by Chinamen drew near to him. He hailed them, and they came close, but refused to take him in, and left him. Despite the exhaustion which want of food and sleep, long immersion in the water, and the great power of the sun must have induced, he hung on doggedly to his plank, and about eleven o'clock in the morning of April 8th obtained his reward. "Tout vient à bout à qui sait attendre." The French steamer *Amiral Niel* picked him up and brought him in to Singapore on the afternoon of April 9th.

The Chinaman of Singapore was a revelation to me. I found no precedent for him in the Burma and Shan States which I knew in 1886–8. Attired in black "bowler" and pigtail, perched on a bicycle, driving tandem, or reposing in his landau or victoria, he was proof of the force of Western example. The Chinese community of Singapore furnishes one company of the local Volunteer Corps. The N.C.O.'s and privates of this company not infrequently drive to the parade ground in their own carriages, and salute as they pass the British officer modestly repairing thither on foot. They contribute generously to the funds maintained by the corps for the encouragement of military sports and exercises and proficiency in the use of the rifle. The Chinaman of Singapore, as of many other cities, has won his wealth under the British flag. As a Volunteer he expresses his recognition and helps to safeguard what he has won.

A prominent feature at the docks and in the streets of Singapore is the

Sikh policeman. If sixty years of British supremacy in the Punjab have moderated the natural pride of the Sikh, twenty years of Sikh supremacy in aid of the civil power at Singapore has resuscitated it. The Sikh police of the Pacific ports appear to the Anglo-Indian traveller to be a little above themselves, and to overstep the bounds of their prerogative. For dealing, however, with the native classes, they are doubtless well qualified. Presumably the pensioned Sikh policeman of the Pacific ports carries back to the Punjab the results of his widened experience. This is one of the thousand little things that are contributing to bring about the "unrest" of the Indian mind.

I was much struck during my two visits to the Pacific by the prevalence of "nipping." I understand that it is regarded as a symbol of good-fellowship, and that it facilitates at the bars of clubs and hotels the transaction of business. For my own part I congratulated the constitutions that could stand it, but thought it a profitless manner of consuming liquor, time, money, and health.

During the last hours of my stay at Singapore I was sore bested for a place of rest. The *Namsang* left me and my baggage on the wharf. The Messageries Maritimes *Dumbea* had not arrived. The hotels were distant; the heat was intense and provocative of thirst; food and drink were unobtainable. Finally the urgency of the case emboldened me to go on board a British India steamer which was moored alongside the wharf. An officer of the ship received me most hospitably, and gave me that panacea of Eastern climes—an iced whisky and soda. The boat's cargo was cotton: her destination Japan. The advent of Rozhdestvensky's fleet was for her singularly inopportune, but when I reached Yokohama on April 27th I heard that the vessel which befriended me in need at Singapore had brought her cargo of contraband safe into port.

After I left the British India boat, I was still in doubt where I should lay my head that night. The arrival of the Messageries Maritimes steamship *La Seyne*, from the Dutch Islands, settled that point. I knew her of old, when she plied between Aden and Karachi, and going on board I found by the courtesy of the captain both supper and a bed. Next morning the *Dumbea* came in, and I sailed in her for Saigon and Hong Kong. I had a large cabin fitted with an electric fan to myself, and as usual the cuisine was excellent. The Messageries Maritimes is my favourite line, not excepting even the "Empress" boats which ply between Hong Kong and Vancouver.

About six a.m. on April 13th we passed Cap St. Jacques and entered the Saigon River, and at mid-day reached Saigon. The *Dumbea* was moored to the Messageries Maritimes wharf. Below us lay the *Orel*, a hospital ship just in from Rozhdestvensky's fleet. It left again in the

afternoon. Above us lay the *Diana*, an interned Russian cruiser commanded by the Prince de Lieven, presumably a member of that family which produced the well-known lady diplomat of the reign of William IV. The *personnel* of the Russian Navy produced no favourable impression. I took up a Saigon paper and read a paragraph charging one officer at least of the *Diana* with perpetual insobriety.

Saigon is French even to the State Theatre—French tempered by the tropics. The botanical gardens are charming, but the heat was oppressive, and I was glad when we sailed on the 15th. Early on the 18th we anchored in the harbour of Hong Kong. I landed, lunched with the Governor, Sir Matthew Nathan, who had formed an Ambulance and Nursing Corps there, and left at mid-day on the 19th in the *Empress of India* for Shanghai. Between 1898 and 1905 the Kowloon mainland had been ceded by China to Great Britain. The possession of the mainland materially strengthens the British position in Hong Kong, the value of which to us was abundantly proved during the operations in relief of Peking in 1900. Since then one British and one Indian regiment have been added to the garrison. In 1898 I found the Hong Kong battalion at Kowloon. An old friend of mine then serving in that corps showed me over its barracks. It is safe to say that no native Indian regiment has ever before or since enjoyed such luxurious quarters and such excellent pay. A sepoy got seventeen rupees a month and free rations too, if I remember rightly. The humble wooden charpoy was replaced by an iron bedstead; the open-air souse under a tap, so often witnessed in India, had given place to the luxury of a covered-in shower-bath; and the quarters of the native officers and sepoys were palaces compared with those at times tenanted by British officers on the North-West Frontier of India. The creator of this regiment was the present commander of the Southern Army of India, General Sir E. Barrow. The Colonial Office found the experiment too costly, and the Indian Government too demoralising for the sepoy. The pampered Pretorian of the Hong Kong Battalion would have rapidly sowed the germs of discontent throughout the Native Army of India. About 1902 it was disbanded. In its day it was a fine regiment, in physique, in *esprit de corps*, and in efficiency.

At Shanghai the *Empress of India* received a number of additional passengers, including Rear-Admiral W. M. Folger, of the United States Navy, who had just resigned command of the United States Pacific Squadron, and four officers of the Russian Navy who had been taken prisoners at Port Arthur and were proceeding to Europe on parole. One of these, Count Keller, late lieutenant of the *Pobieda*, and nephew of the General Count Keller who was killed by a shell at the battle of Motien-ling, shared my cabin. When the *Empress of India* arrived at Yokohama on April 27th, a Russian wolf-hound was brought on board and presented

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The Castle at Nagoya, Japan.

to Count Keller. It appears that this dog was found guarding the body of his uncle when it was recovered after the battle. The dog ultimately found its way to Yokohama. When the owner of it heard that the nephew of its late master had arrived in port he brought it on board the *Empress* boat and offered to return it. Count Keller gladly accepted the offer, and conveyed the dog to Russia *via* Vancouver, New York, and Antwerp. Both the Canadian and United States authorities in this special case waived their rules regarding the importation of dogs, and permitted the wolf-hound to travel straight across the continent by express train.

The harbours of Nagasaki and Yokohama were protected by submarine mines. All vessels were piloted in and out. At Nagasaki, during ingress to and egress from the harbour, the Russian officers were directed to remain below in their cabins.

During my first visit to Japan in 1898 I was allowed by the Lieutenant-General commanding the Division at Nagoya to visit each corps in that garrison. A staff officer and interpreter were deputed to accompany me. I found the colonel of the infantry regiment about to make his periodical inspection, and was allowed to accompany him. Subsequently I visited the lines of a battery, a regiment of cavalry, a company of engineers, and a transport corps, and also the school of telegraphy and a rifle range. I was invited into the mess-house of each corps, and also into the garrison club. I remember that I bore away the impression that all was good, except sanitation. I heard then from the lips of an English sea-captain the highest praise of the discipline of the Japanese troops and of the excellence of their methods of embarkation and disembarkation. After the Russo-Japanese War further commendation of the Japanese Army is unneeded.

On the evening of the 27th, as we lay in port at Yokohama, Captain Marshall, R.N.R., of the *Empress of India*—now a Brother of Trinity House—invited me to his cabin to meet Rear-Admiral Folger. From the day on which I saw the Russian Fleet file past in front of Singapore to the hour when I met Admiral Folger I heard no word of news about the Russian or Japanese Fleets worthy of credence. Seeing that the late commander of the United States Pacific Squadron did not pretend to have any sure information of the movements of the two fleets, any canards floating about clubs or hotels might safely be dismissed as worthless. "One man," said Admiral Folger, "may possibly know where the Japanese fleet is, and that man is the admiral of the British Fleet in the Pacific; a confidence due to the Anglo-Japanese alliance. For my own part, I believe that Togo's fleet is at the Pescadores, south of Formosa, and will not allow Rozhdestvensky to advance up the Formosa Channel without attacking him. But whether Togo be at the Pescadores or at

Sasebo, just north of Nagasaki, he can equally strike east or west. The latest news is that Rozhdestvensky has formed a junction with the second Baltic fleet under Nebogatoff at Batavia. As regards the relative composition and efficiency of the two fleets, the Russian has the advantage in battleships, the Japanese in torpedo boats. Admiral Togo therefore will probably engage his battleships at long ranges, and try to stampede and scatter the Russian fleet with his torpedo boats. That done, he would fall on the Russian battleships one by one in superior force and sink or capture them. The Japanese ships being clean have the advantage in speed over the Russian, which for six months or more have not been touched."

These prognostications are interesting as showing how even those well qualified to form an opinion may arrive at erroneous conclusions. Admiral Folger was right as to the result, but not as to the tactics by which it was obtained. It was not till I reached Liverpool on June 3rd that I heard that Togo at the battle of Tsu Shima had annihilated the Russian fleet. Togo was at Sasebo after all, and on May 27th attacked the Russians with all his force.

When the Russo-Japanese War commenced the three leading Russians in the Far East were the Governor-General Alexieff, the Commander-in-Chief Kuropatkin, and the Admiral of the Pacific Squadron Makaroff. The first syllables of these three names form " A-ku-ma," which is said to mean in Japanese " Devil." This became the common sobriquet for the triumvirate among the Japanese until Makaroff perished in the *Petropavlovsk*. Then, owing to their very high regard for him, they ceased to use the term.

With my cabin-companion, Count Keller, I had naturally frequent conversations. He affected strong resentment against the Japanese for not having nursed the Russian wounded better after the capture of Port Arthur, and showed me the photographs which he had taken of the room in which he and a dozen others were lodged. For my part I could not honestly share his indignation. I am very sure that the Japanese must have found very great difficulty in finding shelter in the bitter winter off the Gulf of Pechili for their own troops and their Russian prisoners. Time probably cooled Count Keller's wrath. I bade him adieu at Victoria, B.C.

On my way from Quebec to Liverpool, in June, 1898, I had as a fellow-traveller Sir Henri Joly de Lotbinière. I now found him as Lieutenant-Governor of British Columbia, and a most kind reception he gave me, taking me to lunch each day at Government House, and showing me the Museum. One part contained samples of locally grown woods, cereals, grasses, fungi and fruits, the other was filled with stuffed animals and many most curious specimens of Indian workmanship. The

Ursus kermodii, named after the Curator of the Museum, and then a newly discovered species, was on view. In 1906 age obliged Sir Henri Joly to resign his Lieutenant-Governorship, and on 16th November last he died at Quebec at the age of 78. Born in Paris of a Huguenot family named Joly, he inherited from his mother the adjunct "de Lotbinière," and a seigneurie in Canada. From 1855 to 1906 he was a prominent figure in the political world, first of Quebec and later of the Dominion. He was known as a politician of the highest probity, and as a gentleman of cultured intellect and courtly manner.

My onward journey *via* Vancouver to Ottawa must be dismissed in a few lines. During the five days in the train I had several interesting conversations with Lieutenant Kolchak of the Russian Navy. He had been deputed in February, 1903, to ascertain the fate of Baron Toll's expedition to the New Siberian Islands in the Arctic Ocean. In July of that year he reached Bennett Island and found conclusive proof that the expedition had perished. He then worked his way back by the valley of the Lena to Yakutsk, and so to Port Arthur, where he rejoined his ship, and on the surrender of that fortress became a prisoner. He was a quiet unobtrusive man, in that respect rather a contrast to his companions, with just a smattering of English.

In 1898, I found Canada crowded with adventurers bound for Klondike. In 1905, I found it inundated with immigrants of all nations. Winnipeg was the great centre of enterprise and speculation. As I made my way along its streets I was astonished to see at every turn strange types, and to hear falling on my ears unknown tongues. It is impossible here to discuss the possibilities and problems before the Dominion. I saw enough to measure the progress that had been made in a few short years, and if there are difficulties to be overcome we may be sure that they will be encountered in a spirit of wise optimism and cautious statesmanship.

TRAVEL-LITERATURE

A Short Cut to India.

In *The Short Cut to India* (William Blackwood & Sons; 12s. 6d. net) Mr. David Fraser has combined with a discussion of the Baghdad Railway question an account of his experiences while travelling along the proposed route of the railway. Near to Urfa he was attacked and shot by an Arab robber in circumstances which are too long to quote, but which make an interesting and exciting story. Mr. Fraser was wounded in both arms, and, having submitted himself at first to treatment by the local Arab hakeems, suffered from blood-poisoning and had a long and nasty illness. On his recovery he renewed his journey and passed down the Tigris on a kelek, a giant raft composed of a large number of inflated goat skins tied together in rows underneath a frame of light poplar poles. The voyage was not without excitement. While racing down the magnificent gorge through which the Tigris flows after being joined by the Bohtan Su, the raft was struck by a squall rushing down from a gash in the hills. "At the moment we were making for one of the worst places in the river, where huge rocks fallen from the heights above sit in the narrow bed and deflect the stream in bulging torrents from side to side of the gorge. Heavy overfalls, raised by the wind blowing against the current, caused the kelek to rock wildly, and for a moment I thought we had no earthly chance of holding together." Soon a corner of the raft struck the shore with a heavy smash, and the scrape along the bank did damage to many skins. "In a few seconds about thirty were deflated, and our displacement reduced so that one corner of the kelek was under water. In this semi-sinking condition we regained the current and were swept along, the kelekjis and zaptiehs pulling like mad, and looking for a haven where damages might be repaired. They made a shot at the lee of a small peninsula, one of the men dived overboard with the rope, and every effort was made aboard to force her into the eddying current. But without success. The rope was torn from the hands of the unfortunate boatman, who had just managed to make the shore, and the kelek flew onward, leaving him stranded." Ultimately, the kelek found refuge on a stretch of sand where the damage to the goat skins was repaired and the party waited till the squall was over.

Mr. Fraser is very critical both of the Baghdad Railway scheme and of Sir William Willcocks' proposals for the development of Mesopotamia by irrigation. With regard to the latter he does not question the practicability of Sir William's irrigation projects, but he is extremely sceptical of the realisation of the promised results on the ground that it is difficult to believe (1) that Turkey could procure the restoration by herself; (2) that she would allow another country to step in and do it; (3) that any other country would undertake the expenditure involved unless the political control were invested in herself; and (4) that in a region so sparsely inhabited the population necessary to cultivate the reclaimed land could be found. Similarly with regard to the Baghdad Railway,

Mr. Fraser doubts whether the line would ever justify the cost. "A milkman cannot afford to employ a powerful motor-car for the distribution of his morning pennyworths, not because the motor-car would not enable him effectively to accomplish his task, but because the expense would be out of all proportion to the possible gain. The railway would certainly achieve results. But at what cost!" As to the effect of the railway, if and when constructed, on British commercial interests, Mr. Fraser says: "Nothing can affect the main issues, which are that the railway cannot supplant steamship traffic to the Persian Gulf, and that it cannot, without loss to itself, defeat the steamers on the Tigris in the matter of carrying between Baghdad and Bussorah. It is only when traffic reaches a volume far in excess of what is either probable or possible within the near future that the railway will commence to have a look in. Meantime, so far as can be judged, the Baghdad Railway may be constructed and opened to traffic without there being any prospect of British trade or British shipping being a penny the worse, except in so far as we would be dealing with a country that was annually throwing into a bottomless pit a million of money that might otherwise have been spent on foreign manufactures."

Those who wish to study the question in detail will find valuable information not only in the chapters which Mr. Fraser devotes to the subject, but in the appendices in which he gives the complete text of the Baghdad Railway Convention, the Cahier des Charges, the Statuts, and the Convention Additionnelle. There is a large folding map showing the route of the proposed railway, and a number of illustrations from photographs add picturesque interest to the volume.

Tribal Customs in British East Africa.

Mr. A. C. Hollis is an excellent type of the British official on the outskirts of Empire who delights to combine with the routine work of administration studies of permanent scientific value. He has now done for the Nandi of British East Africa what a few years ago he did for the Masai—that is, collected a mass of most interesting information about their manners, customs, religious beliefs, folk-lore, and language, which will be of the greatest assistance to anthropologists and ethnologists in determining the position occupied by these peoples in relation to other East African tribes. Sir Charles Eliot, the former Commissioner for the British East African Protectorate, contributes an introduction which is deserving of special attention, as it is not merely laudatory testimony to the value of Mr. Hollis's services, but a long and valuable essay in which Sir Charles discusses the conclusions to be drawn from Mr. Hollis's researches.

The latter half of *The Nandi* (The Clarendon Press; 16s. net) is occupied with a Nandi Grammar and English-Nandi Vocabulary. In the first half Mr. Hollis supplies information about the Nandi of more general interest. Some of the omens to which they pay regard are curious. "If a person is proceeding on a journey and strikes the sole of his foot or the big or little toe against a stone, it is a good omen. If, on the other hand, he strikes his second, third, or fourth toe, it is a bad omen. To call back a person who has started on a journey portends evil. Should he be wanted, someone must run after him

and tell him whilst accompanying him what is required. If a fly enters a traveller's mouth and he spits it out he may expect a good reception at his journey's end ; but if he swallows it, it is a sign that he will go to bed hungry. A rat crossing the path in front of one is propitious, whilst a snake is unlucky."

As elsewhere in Africa and in other parts of the world, Nandi children have toys and play at different games. Small children are fond of building huts in the sand, and collecting snails, pebbles, and solanum berries, which they say are cattle, goats, and sheep. Boys make tops out of the kimoluet fruit, and clubs out of bulrushes, and like to arm themselves with wooden spears and shields, while the girls dress dolls, which they make out of the fruit of the sausage tree, in skins, and make necklaces and bracelets of vegetables and seeds. In one of the games they play, called "kimnis," from ten to twenty children sit in a circle and take a piece of live charcoal, which they pass from one to another. One child stands outside the circle and guesses who has the charcoal. If he guesses correctly he is told he will have meat for supper, but if he is wrong he will be given donkey's flesh.

The book is profusely illustrated, is provided with a good index, and has a map showing the distribution of the Nandi.

An Angler in California.

In *Sunset Playgrounds : Fishing Days and Others in California and Canada* (Witherby & Co. ; 7s. 6d. net) Mr. Aflalo gives us another of his pleasantly-written narratives of travel. Though the routes over which we are guided can make no claim to be new, the scenes described gain a certain freshness from the writer's power of vividly reproducing the sensations with which he himself beheld many of them for the first time. The primary object of the journey was fishing, and to the angler his enthusiastic descriptions of the possibilities of the Western lakes and streams, as well as of the sea-fishing off the coast of California, will appeal with special force. But those who are less passionately devoted to the gentle art need not fear an overdose of fishing episodes, for these are judiciously kept within reasonable limits, and there is compensation in the fact that the scenes most favourable to this kind of sport are just those of special attractiveness to all lovers of wild nature. Mr. Aflalo is an excellent interpreter of their charms, and he gives some striking descriptions, among which that of Lake Tahoe in California may serve as an example. "Here, then, a little over two hundred miles from San Francisco, is the loveliest lake I ever dropped a line in. You can walk for miles around its shores in the shade of tall pines and on the soft carpet of their needles, without encountering anything more dangerous than the tame little ground squirrels that all but take food from your hand. . . . . Mallard fly in pairs from shore to shore ; sea-gulls float lazily against the blue haze of the peaks ; and kingfishers (known locally as 'king-snipe') flash across the rocky inlets. Oh, the peace of my sweet lake in the Sierras ! Out on the bosom of it, or lying by its margin, you wonder with Thoreau why men worry so."

The book covers a somewhat wider field than is indicated by the title, for on the way to California we are taken through the West Indies, Panama, Mexico,

and the Southern States. Mr. Aflalo gives his ideas freely on a variety of topics —the prospects of the Panama Canal, the "Americanisation" of Canada, the effect on Niagara of the power schemes, and what not. If not very profound—for in a rapid journey there were naturally not many opportunities of looking below the surface—they are at least of interest as the impressions of an outsider, and criticism is disarmed by the modest claims made by the author for his book, which he regards as "a mere collection of random impressions of sport and scenery, of men and cities. . ." It is excellently illustrated by photographs, and will serve admirably to while away a pleasant half-hour amid scenes of varied beauty and interest.

EDWARD HEAWOOD.

Sport in Many Lands.

IN the course of a two years' tour round the world, Mr. H. F. Wallace visited the Yellowstone Park, British Columbia, New Zealand, Japan, India, and British East Africa, and in *Stalks Abroad* (Messrs. Longmans, Green & Co.; 12s. 6d. net) he has embodied an account of the sport he enjoyed. In addition to a narrative of his experiences he furnishes in the chapters on British Columbia and New Zealand an interesting discussion of the game laws of those countries. Incidentally, also, in writing of New Zealand, Mr. Wallace draws attention to the enormous proportions attained by the rabbit pest in that country and in Australia. He has known, he says, of big run-holders who spend £5,000 annually in the endeavour to exterminate the rabbits on their property, and yet they increase. It is only when one sees poison carts starting off every morning on their deadly round that one begins to realise the grave extent of the evil. These poisoned carts are lightly constructed machines which plough a narrow furrow about an inch deep and an inch or more in width. Into this furrow a small pellet of poison is automatically dropped at intervals of about a yard. The poison used is phosphorous mixed with pollard into a kind of paste. This method appears somewhat cruel, for the rabbits after eating it do not die at once; but it is undeniably efficacious, and the action of the poison diminishes to a great extent any unpleasant smell which the sudden death of the rabbits might occasion. The danger is that in times of drought, when they are unable to get any other food, the sheep will eat the poisoned rabbits and so die themselves. In New Zealand the authorities have imported cats, stoats, weasels, ferrets, and a variety of other noxious beasts in the hope of aiding in the process of extermination. But the rabbits remain as numerous as ever, and the only result has been that the wingless and nearly every ground-nesting bird has been exterminated.

Several chapters are devoted to an account of Mr. Wallace's experiences in British East Africa. One rather amusing story he tells, relating to Nakuru, a station on the Uganda Railway about mid-way between Nairobi and the Victoria Nyanza. (By a curious slip Mr. Wallace speaks of it as being four hundred and fifty miles from Nairobi.) "The local inhabitants were much plagued by the number of pie dogs which roamed at large. After much cogitation they hit on a plan for getting rid of them. All their preparations having been made and the district engineer taken into their confidence, they waited for a suitable day when the 'mixed down' was

signalled. Then those that were in authority sent out all the policemen and askaris they could find, with orders to capture every dog within sight. The dogs arrived in cartloads, and were unceremoniously stuffed into the dog-box attached to the 'mixed down.' At last every atom of space was filled with dog, and the train departed. Then the district engineer, filled with a wicked joy, despatched the following telegram to the local babu two stations down the line: 'Dog in dog-box without ticket.' Full of zeal, the babu hurried out to meet the 'mixed down.' It was very much mixed that day. No sooner had he opened the door than he was overwhelmed by a living avalanche of pie dogs of all shapes, sizes, and colours. They have not yet been returned to Nakuru."

The book is provided with a number of illustrations from photographs and drawings by the author.

On the Afghan Frontier.

It is very rarely that one comes across a book of travel so full of good stories as Dr. Pennell's *Among the Wild Tribes of the Afghan Frontier* (Seeley and Co.; 16s. net). Dr. Pennell is a medical missionary who, as Earl Roberts bears testimony in the introduction, has behind him sixteen years of admirable work centring in Bannu, on the north-west frontier of India. His book is not a chronological record of his experiences, but he has gathered up his knowledge of the wild border tribes into a series of chapters, many of which deal with various aspects of missionary work, while others are of a more general nature, and treat of such subjects as the Afghan character and Afghan traditions. Dr. Pennell writes in a broad tolerant spirit with both sympathy and insight. He has an evident admiration for many of the qualities of the proud, truculent people among whom his work lies, and it is no less evident that he has succeeded in making himself loved and respected among them. They are a people who do not stick at trifles, and the great bane of the country is the blood-feuds that are constantly leading to outrage and murder. Their way of looking at things is often strange to Western minds. It is related of a certain section of the Afridis, for instance, that having been taunted by another tribe for not possessing a shrine of any holy man, they enticed a certain renowned Seyyed to visit their country and at once despatched and buried him; and to this day they boast of their assiduity in worshipping at his sepulchre!

In some interesting chapters on the British administration of this border country, Dr. Pennell points out that the real strength of our administration lies in the *personnel* of our officers. "It has," he says, "always been the man and not the system that governs the country; and there are names of officers now dead and gone which are still a living power along that frontier, because they were men who thoroughly knew the people with whom they had to deal, and whose dauntless and strong characters moulded the tribes to their will, and exerted such a mesmeric influence over those wild Afghans that they were ready to follow their *feringi* masters through fire and sword with the most unswerving loyalty, even though they were of an alien faith. As an example of this, it is related that on a certain frontier expedition the regiments were passing up a defile on a height, above which some of the enemy had ensconced

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Ziarat or Shrine on the Takht-i-Suliman.

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themselves in ambush behind their *sangars*. The Afghans had been soldiers in the Indian Army, who had now completed their service and retired to their hills, and were, as is often the case, using the skill which they had learnt in their regiments against us. They were about to fire, when one of them recognised the officer riding at the head of the regiment as his own Colonel. He stopped the others, and said: 'That is our own *Karnal Sahib*. We must not fire on him or his regiment.' That regiment was allowed to pass in safety, but they opened fire on the one which succeeded."

On another occasion, Dr. Pennell relates, a political officer had been touring with the head men of some of the independent border tribes. He had treated them well, and being able to talk with them in their own language, he could discuss with them familiarly their views on all sorts of matters. "Now tell me," said the officer, "if there were to be war—which God forbid—between Russia and England, what part would you and your people take? Whom would you side with?" "Do you wish us to tell you what would please you, or to tell you the real truth?" was their naïve reply. "I adjure you only to tell me what is the 'white word'" (meaning the true statement). "Then," said an old greybeard among them, voicing the feelings of all present, "we would just sit here up on our mountain-tops watching you both fight, until we saw one or other of you utterly defeated; then we would come down and loot the vanquished till the last mule! God is great! What a time that would be for us!"

The value of the work is enhanced by a number of excellent illustrations and a good map.

Recent Maps.

We have received from Mr. Edward Stanford four sheets of the map of Turkey compiled and produced by the Geographical Department of the War Office on the scale of 1 : 250,000, or about four miles to the inch. The districts covered are (1) Ismid, part of Asiatic Turkey bordering the southern shores of the Black Sea; (2) Vize, comprising a narrow strip of the country along the Western shores of the Black Sea, extending to a little north of the Bulgarian frontier; (3) Adrianople, and (4) Jumaa-i-bala, both comprising a long stretch of the Turco-Bulgarian frontier. The last two sheets are particularly interesting in view of the present critical situation in the Near East. On the Ismid sheet hills and mountains are shown by shading, but on the other three the approximate contours are outlined. Metalled and other roads and tracks are also marked, as are railways and telegraph lines. The price of each sheet is 2s. 6d.

From Mr. Stanford also come two sheets of the map of Northern Nigeria, compiled and produced by the Geographical Department of the War Office, on the scale of 1 : 250,000. The sheets cover the Yola Province, and though a great advance on anything previously published, the numerous extensive blank spaces bring very forcibly home the great amount of work which has still to be done before the geographical features of Northern Nigeria are known in detail. A valuable feature of the southern sheet is the tracing around Yola of the frontier between Northern Nigeria and the German Kamerun Colony. The price of each sheet is one shilling.

In their World-Wide Series of Library and Office Maps, Messrs. W. and A. K. Johnston, of Edinburgh, have published an entirely new map of South Africa on the scale of 1 : 2,500,000 or forty miles to the inch. The map measures forty-two inches by thirty-seven inches, and takes in the southern portions of Angola, North-Western Rhodesia, and Nyasaland. It is printed in black and six colours, showing the principal goldfields, coalfields, diamond fields, and copper mines. Railways, roads, and the boundaries of political and administrative divisions are also marked, and the chief steamship routes are indicated with the distances in miles from port to port, and in most cases the duration of the voyage in days and hours. The hills are indicated by shading, the printing is clear, and in general the map is excellent of its kind, though we notice that Lake Ngami is still shown in deep blue, whereas in recent years the lake bed has been practically a dry expanse of reeds. Messrs. Johnston have also forwarded two other maps in the same series—one a revised edition of their map of Asia, and the other a map of the World on Mercator's projection. Each map is dissected, mounted on cloth, and supplied in a neat cardboard case at the price of fifteen shillings.

From Messrs. J. G. Bartholomew & Co., of Edinburgh, we have received a new contour map of Central Europe, on the scale of thirty-one miles to the inch, taking in France, Belgium, Holland, Germany, Switzerland, the eastern part of the Austro-Hungarian Empire, Northern Italy, and the north-eastern corner of Spain. The map is designed to show the principal motoring routes between the chief towns, and should be useful to long-distance motorists. The main roads are shown in thick double-red lines, and secondary roads by thinner double lines, the distances from town to town being also shown in kilometres. The map is coloured to show contours of altitude so that in tracing any route the motorist will at once see the various altitudes to be crossed and the rise and fall of the road. Railways are marked in black, but we do not see any clear indication of international frontiers. There are large-scale inset maps showing the environs of Paris, Hamburg, Berlin, Vienna, Rome, and the Riviera from Nice to Monico. The price of the map mounted on cloth and dissected to fold into pocket form is five shillings.

THE EXPLORING WORLD

The Duke of the Abruzzi's New Expedition.

If all goes well H.R.H. the Duke of Abruzzi will shortly be engaged on another important exploring and mountaineering expedition. Sailing from Marseilles about the end of March he will, it is understood, make his way to the Karakoram Himalayas accompanied by his aide-de-camp, Naval Lieutenant Marchese Negrotto, Dr. Filippo de Filippi, and Signor Vittorio Sella, together with eight porters and guides, all Italians. It was to the Himalayas that the Duke of the Abruzzi first turned his attention when he began to take an active part in exploring work. About a dozen years ago he organised an expedition to attempt the ascent of Kangchenjunga, which has the credit of being the second highest mountain in the world. Difficulties arose, however, in the way of the execution of his plans owing to an outbreak of plague in India, and the Duke, determined not to be baulked of his desire to engage in the conquest of some giant mountain peak, proceeded to Alaska, where he achieved the first ascent of Mount St. Elias, which towers to an altitude of over eighteen thousand feet. Between then and now the Duke of the Abruzzi has been the leader of two other successful exploring expeditions—the one to the North Polar regions on board the *Stella Polare* in 1899-1900, the other in 1906, when he ascended the previously untrodden highest peaks of Ruwenzori. On this last expedition, as on that to Mount St. Elias, the Duke of the Abruzzi was accompanied by Signor Vittorio Sella, whose reputation as a mountain photographer is unequalled. Dr. de Filippi was also a member of the expedition to Mount St. Elias, and has performed the useful part of writing the narratives of the Duke's journeys which have appeared in book form. The Duke will be therefore well attended on his new expedition, and barring any unfortunate mischance such as marred the plans for his former expedition to the Himalayas, it may be confidently anticipated that he will usefully increase our knowledge of the Karakoram Mountains, and in so doing add further to his laurels as a great explorer and climber.

The New British Malay States.

The Treaty which was signed between Great Britain and Siam on March 10th, providing among other things for the transference to British suzerainty of a tract of territory about fifteen thousand square miles in extent, which may roughly be described as covering the States of Kelantan, Trengganu, and Kedah, should give a strong impetus to the exploration of some of the most interesting and least-known parts of the Malay Peninsula. Comparatively few Europeans are acquainted with these States, and the knowledge of most of those who do know anything about them is confined to the coast. A very small number indeed have travelled in the interior and taken accurate geographical observations. Sir (then Mr.) Henry Norman passed from Legeh down the Pergai River into Kelantan in 1890, and the same State was visited in the same year by Mr. Bailey. Some years before a Russian naturalist, Baron Maclay, explored the

Lebir River, which is the main tributary of the Kelantan River, but he left no map of his journey, and the Lebir was first surveyed by Mr. Hugh Clifford on an expedition through Trengganu and Kelantan which he carried out in 1895 while Acting British Resident in Pahang. Mr. Clifford entered these countries with the consent of the local rajahs and of the King of Siam in pursuit of a party of Pahang rebel chiefs, who, driven from their own country in the autumn of 1892, had collected a large following of Kelantan and Trengganu Malays, and devoted themselves to raiding Pahang territory. In the course of Mr. Clifford's expedition a large tract of country was traversed which had never before been visited by Europeans, comprising the greater part of that region along the east coast of the Malay Peninsula which Sir Henry Norman described at the time of his journey as being "still as unfamiliar as the remotest parts of Africa to the foreign explorer." Of this country a careful and detailed map was made, and much interesting information was collected concerning the history, customs, industries, and other characteristics of the people.

A Vivid Word Picture.

Mr. Clifford has given, in the paper which he read before the Royal Geographical Society on his return from this expedition, a charming word-picture of the luxuriant tropical vegetation which covers the greater part of the interior of the country. "Those who have never seen a Malayan jungle can with difficulty picture such a tangle of vegetable growths. Gigantic trees rear their crests one hundred feet from the ground, the trunks often running eighty feet sheer without fork or branch. Around these monsters, and pressing as close to one another as a crowd at a theatre exit, other and lesser trees push and crush their way upwards, fighting among themselves for every square inch of available space. Round about their roots and the bases of their trunks, brambles and thorns, and creepers and undergrowth, such as, I believe, are to be seen in no other part of the world, twine and lace, and intertwine and interlace, in one huge intricate and entangled web of living vegetation. Parasitic growths, some serpentine and immense, with the slow persistent strength of time itself, eat their way half through the gnarled barks of the hardest and hardiest trees; others, graceful and beautiful, with a thousand shades of delicate colouring and splendid flowers, hang in festoons from the branches of the trees, which they ornament, canker, and destroy. The whole reeks with the damp smell of rotting and growing greenstuff; the rich soil under foot is dank with the decaying leaves, which give life to the trees and shrubs and creepers above them; and in these forests there reigns by day a perpetual gloom and silence."

A Land of Mountains and Streams.

But the ceded territory is not only a land of jungle; it is a land of mountains and streams, of rugged heights and dashing waterfalls. Along the east coast stretches a fertile plain of varying width, but behind this the land begins to rise; first isolated hills appear, and then chains of jungle-clad mountains, the summits of which rise higher and higher as they recede. On the borders of Trengganu and Pahang rises the most famous peak in the Malay Peninsula — Gunong Tahan, or "the forbidden mountain." This peak, separated from the settled

districts by long stretches of pathless jungle, has never yet been ascended by the Malays, and is regarded by them with great fear and awe, its summit being reputed to be the home of terrible demons who keep watch over treasures of countless price. Until a few years ago it was believed that Gunong Tahan rose to a height of about ten thousand feet, but one or two adventurous Europeans who have climbed it have brought back observations from which it appears the height is not more than about eight thousand feet. Numerous other virgin peaks rise to heights of five thousand or six thousand feet, and there is here a magnificent field for the mountaineer who likes to add to his climbing the element of exploration. In these jungle-clad mountains rise innumerable streams whose frequency is especially noticeable in Trengganu. The latter State has been described as more characteristically a land of rapids and waterfalls than any other part of the Peninsula. It comprises the basins of at least a dozen rivers, the principal of which is of the same name as the State itself. Below the confluence of the two main head streams of the Trengganu River occurs a series of eight rapids known as the Kelemang Falls, extending over a distance of three miles. It has been estimated that in the course of a distance of six miles the river at this point drops from eighty to one hundred feet. In the plain through which the lower Trengganu flows is found the bulk of the population inhabiting the State. Mr. Clifford estimated the number of people occupying the lower valley at the time of his visit at about forty-five thousand. They are an industrious people, zealous Mohammedans, enjoying a comparatively high standard of culture, and well versed in native arts and manufactures.

Benefits of British Guidance.

Kelantan, to the north of Trengganu; is a much more thickly populated State than its southern neighbour. The Kelantan River is estimated to have a length of about one hundred and twenty miles, and is navigable by large boats for about two-thirds of its course upwards from the sea. Kota Bharu, the capital, alone has a population of about ten thousand, and the total number of inhabitants is estimated by Mr. W. A. Graham at nearly a third of a million. Mr. Graham has for half a dozen years past occupied at the Court of the Rajah the position of Resident Commissioner and Adviser. He was the first to be appointed to the position, and until now has held office on behalf of the King of Siam, though his appointment was by the advice and with the approval of the British Foreign Office. Mr. Graham has had a very stiff uphill fight in reforming the abuses which before his advent were rampant in every branch of the administration—so far, that is, as there can be said to have been any proper administration under a system which was governed by the caprice of an amiable but irresponsible Oriental despot. Gifted with great tact and patience, and a saving sense of humour, Mr. Graham has achieved wonders in the way of introducing a measure of respect for law and order into the minds of the Rajah's royal relatives, who were wont in the past to divide among themselves the spoils of office. No doubt there is still room for further reforms in many directions, but evidence of the success of Mr. Graham's efforts is afforded by the increasing economic prosperity of the country. Large

numbers of new shops have been built at Kota Bharu; a movement of immigration, comprising not only Chinese from the Straits Settlements and Mohammedan Klings, but Malays from other parts of the Peninsula, has set in; and the returns both of revenue and trade show a large increase. Within the last few years the number of cocoanut palms in Kelantan has doubled and great interest has been displayed by the Malay landowners in the cultivation of rubber. The State has great agricultural, pastoral, and, it is believed, mineral resources. The wealth of Kelantan in this last respect has still to be properly tested, however, and here is one of the many fields in which the explorer may hope to add usefully to existing knowledge of the country.

Travellers and Survey Work.

Many good opportunities of extending geographical knowledge of little-known parts of the earth are needlessly lost by sportsmen or other travellers owing to their being under the impression that survey work is beyond their capacity. The awful spectre looms before them of many-paged volumes of abstruse and deep mathematics, which must somehow or other be conveyed into the head of any traveller who starts upon a journey with survey work in view. This idea is quite illusory, and to anyone who has the means and leisure to travel for the love of travelling, but who has been deterred from attempting to secure any survey observations by fear of the mathematical work that would be involved, we cannot give better advice than that he should call at the rooms of the Royal Geographical Society and have a talk with Mr. E. A. Reeves, the Society's Map Curator and Instructor in Surveying. A man who has received an ordinarily good education will find himself, after about three weeks' instruction, in a position to bring home cartographical material that will be of undoubted value. Far more important than a lot of mathematics for such a man is a knowledge of the practical part of the subject—the instruments essential to accurate surveying and the way in which those instruments should be used. The mathematical part of the work can for the most part be attended to after the traveller has returned, and all the more serious computations made by experts. Nor is the size and weight of the instruments essential to modern survey work such a difficulty as travellers who like to journey with a light equipment often fancy. It is true that a man starting off with only a small prismatic compass and an aneroid is not likely to do much good work. But to imagine that good work can only be done with the aid of many bulky and weighty instruments, among which must be a large theodolite, weighing perhaps with its stand something like a hundred pounds, is quite erroneous. In recent years many ingenious contrivances have been brought out to facilitate the work of travellers who are prepared to go to a little trouble in the cause of geographical science, and a short period of preliminary training in the use of these instruments is all that is needed to enable travellers to give geographical value to journeys which would otherwise only have the interest of a pleasure trip.

A Grievance of French Travel.

All English travellers should feel indebted to Mr. Frederick Harrison for his vigorous denunciation in the *Times* of the methods of the P.L.M. Railway. The particular instance of breach of faith with the public which Mr. Harrison so convincingly denounces is concerned with the practice of inducing passengers to pay two shillings for a reserved seat in an alleged through carriage from Calais to Montreux in connection with the eleven a.m. continental service from Victoria. Almost invariably this through carriage (although prominently labelled "Calais to Montreux") is taken off on various pretexts at the Gare de Lyons, Paris. Consequently, the unfortunate through passengers who have paid the South Eastern Railway two shillings extra for a reserved seat are turned out from the carriage on to the Gare de Lyons platform and have to wait nearly two hours for the crowded Simplon express. Hitherto it has been found impossible to obtain redress from the South Eastern Railway, who content themselves with shifting the responsibility for this breach of faith on to the shoulders of the P.L.M. Company, who appropriate the whole sum derived from the reserved seats. The latter company have hitherto ignored the expostulations of aggrieved passengers. There can be few more flagrant instances of the proverbial tyranny of a monopoly. Mr. Frederick Harrison, having taken up the matter, is determined to see it through, and in a conversation I had with him recently I learned that he had been at the pains to find out no fewer than one hundred and forty instances of English travellers having been deprived of the accommodation for which they had paid. It is proposed to send a letter signed by prominent English people who have suffered in this manner to the directors, and it is hoped that the cumulative effect of this remonstrance may remedy a long-standing abuse.

A New Train-Ferry.

By the new train-ferry which has been put on between Sassnitz, near Rugen (Germany), and Trelleborg (Sweden), not only is the railway journey between Stockholm and the capitals of Europe much shortened in point of time, but it is now possible to travel from Berlin to Stockholm without change of carriage. The whole train is put on the steam-ferry (which is fitted with double tracks) and carried the sixty-five miles of sea which intervene between the North German and South Sweden coasts. For many years it has been possible to travel by through carriage from Berlin to Copenhagen by means of the well-known Warnemunde-Gedser steam-ferry, but the sea voyage was barely half the distance. The success of the various sea-ferries in Europe and America rather points to this being the most likely solution of the English Channel-crossing problem. It is, at all events, free from the obvious political, military, and engineering objections presented by the alternative schemes of tunnel or bridge.

The Holy Railway.

Though the Hejaz Railway is not open for passenger traffic beyond Maan, and it is probable that considerable restrictions will be placed on non-Moslem travellers using this railway as far as Medina, yet the section open to ordinary travellers gives facilities for visiting a district formerly only open to explorers as distinct from tourists. By this means the extremely interesting rock city of Petra, one of the most mysterious of Eastern cities, can be reached at a very moderate expense. As might be expected, Messrs. Cook have lost no time in organizing excursions to the "Rose red city, half as old as time." The tours are arranged weekly, leaving Damascus every Monday, and the inclusive charge for the whole seven days' tour is twenty-one guineas —an extremely moderate charge in view of the costly conditions of travel out of the beaten track in Syria. It includes first-class railway accommodation from Damascus to Maan and back, horse with English saddle for the journey from Maan to Petra, and accommodation in camp at Petra. Incidentally it is curious to note that the trains on the Hejaz Railway are fitted with mosques, a carriage in each train being converted into a mosque on wheels.

Archæological Discovery in Rome.

A discovery of great historical as well as archæological importance has just been made in the course of excavations on the Janiculum, no less than a remarkable Syrian temple, containing many statues and relics of great antiquarian value. With the exception of the so-called "Tomb of Romulus," in the Forum, perhaps no discovery of such importance has been made in recent years. The excavations have revealed very clearly the architectural plan of the temple, and the objects found on the site illustrate in a very interesting manner the history of this sanctuary dedicated to the Syrian deities. Perhaps the most interesting find was that of a bronze statue representing a woman tightly swathed like a mummy, the head alone being free. A dragon is wound round the body of the statue. This image is thought to be an idol similar to one which was known to exist in the temple of Heliopolis, in Egypt.

Tourist Jottings.

The Compagnie Générale Transatlantic have put on a new turbine steamer (*Charles Roux*) on their Marseilles-Algiers service. This will reduce the voyage from twenty-six to twenty-two hours.

The St. Raphael Golf Club are discarding their links at Valescure, and laying out another course, which will be ready next season.

The whole amount required for the French memorial to the late Queen Victoria at Cimiez has now been subscribed. The monument will probably take the form of a portrait statue.

Over £700 has been collected at Nice this season for the Queen Victoria Memorial Hospital.

A weekly steamboat service has been started this winter between San Remo and Nice. If successful, the service will be daily.

The Montreux-Glion Electric Railway, which will bring Caux and the Rochers de Naye in direct communication with Montreux, is expected to be open for traffic this spring.

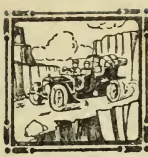
EUSTACE REYNOLDS-BALL.

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

Ancient —
The Amphitheatre at Nîmes, dating from the 1st-2nd Century A.D.

—and Modern.

Messrs. Wright's Aero Dock at Pont Long, near Pau. The famous aeroplane is ready to be drawn out, and the Comte de Lambert, the first of Mr. Wright's pupils, is seated in the car beside the Hon. C. S. Rolls.



MOTORING IN MANY LANDS

From Spain to Italy by Car.

Starting from San Sebastian on Carnival Day I was so fortunate as to be one of a party who made a tour along the foothills of the Pyrenees by way of Pau, Carcassone, Nîmes, Aix, and Cannes to Menton. So little frequented by motorists was the route by which we thus drove from Spain through France to Italy, that between Tarbes and Aix only three cars were encountered. As the road surfaces are good, and the route traverses some very picturesque parts, a few notes may prove useful to others who may be contemplating such a journey. The road from San Sebastian to Biarritz is beautifully banked at every turn and corner for the convenience, it is stated, of the King of Spain, and it is expected that presently it will be so laid all the way to Madrid. You cross the frontier and go through the Customs formalities at Behorade, a point of practical interest being that very little difficulty is presented to the motorist entering Spain, inasmuch as it can be arranged by paying a nominal fee to the leading garages at Biarritz, nor is it necessary to change the number-plates which one receives in France, which saves time and trouble, as well on the outward as on the return journey.

Along the Pyrenees.

If one starts from no further in Spain than San Sebastian, the character of the people disappears very quickly, albeit there is a trace of the nationality quite as far as Bayonne, especially in the matter of the language. The quaint churches, where the men are separated from the women, the smart uniforms of the Customs officers and the nurses, the pack-mules and so forth, however, are left behind at the border. From Bayonne by way of St. Martin, Peyrehorde, Orthez and Artex to Pau there is very fast and level going along a broad and dusty road, which curves somewhat in a manner calling for caution as far as Orthez, but is thereafter uncommonly straight. The Pyrenees are in sight on the right nearly all the way after passing the Spanish border. To Pau is only a hundred miles' stage from San Sebastian, so that it is a convenient place to call a halt for luncheon. The afternoon may be very profitably spent in an eight miles drive to the Champ d'Aviation at Pont Long, where, in the afternoon, the Wright aeroplane is usually launched in flight for the purpose of teaching pupils how to handle it. If you wait to see these exhibitions it will be best to spend the night at Pau, and make an early start the following morning.

Annoying Delays.

Straight roads do not extend much beyond Tarbes, whence the eastward course consists of a fine series of excellently graded serpentine rises that our Rolls-Royce car surprised me by taking quite easily on the direct drive, despite our carrying a quantity of luggage and being four aboard. One needs a powerful car for a journey of this sort if one is to avoid becoming over-hungry between meals, because the places where good accommodation is afforded are rather few and far

between. We got terribly delayed five miles either side of Lannemezan owing to the main road and all those converging on it being alive with people driving all kinds of cattle into the town. It was no ordinary case of taking the beasts to market, and from what we could gather from the answers in patois to our questions, the animals were going to be blessed, for it was Ash Wednesday. Further along the road between St. Girons and Mas d'Azil we had to pass through some quaint little villages on the right, with a series of memorials on the hilltops that put one in mind of Oberammergau, while a few kilometres further on lamps had to be lighted in broad daylight to pass through the extraordinary grotto de Mas d'Azil, that seems to provide a natural tunnelling as well as watercourse, the roadway twisting in a manner that shuts out the light, despite the fact that the passage itself is not long. A very fine rise follows, and one is rewarded at the top of the climb by a magnificent panorama of rolling hills, by some of which the descent is made into Mas d'Azil. The last few corners, when one is in sight of the town, are of the hairpin sort that happily presented no difficulties to us owing to the extraordinarily sharp wheel-lock of the long low six-cylinder car.

Natural Fortress Towns.

The route all the way along the Pyrenees is notable for the number of ancient natural fortress towns of more than ordinary historic interest that make picturesque the hills to right or to left of the highway. The road beyond Pamiers is so fast and relatively flat that with a good car and good luck in the matter of tyres it is possible to reach Carcassone before sundown. Here part of the following day may be profitably spent in examining the ancient fortress town, whence you follow the road by Capendu, and about ten miles further on, just short of Lézignan, have your first sight of the Gulf of Lyons. Beziers and Montpellier are the only considerable towns that are passed through thereafter on the way to Nîmes, which is an admirable stage for luncheon and rendered widely familiar by name as the scene of bullfights in summer in the wonderfully well-preserved Roman amphitheatre, dating back to the first and second centuries of our era, that once provided accommodation for no fewer than twenty-four thousand spectators. We had a funny experience after passing Tarascon, St. Rémy, Orgon, Maillemort and Lambese on the way to Aix, whereabouts the road is very fast, straight and undulating, and one becomes aware of having quitted the neighbourhood of the Pyrenees. On a broad, open tract of country the only features that caught the eye as we came over a hilltop were three gypsy-vans halted on the roadside. On nearer approach what appeared to be an enormous man in a fur coat was seen reclining on the ground beside some of the gypsies, the head being turned away from us. The figure looked like that of a giant motorist appreciating the comfort of furs in the fifty-mile-an-hour north-east side wind that was causing everyone to shiver. The instant we had sped past the caravan there was the report as of a cannon owing to the bursting of one of our tyre-tubes, and the supposed reclining motorist sprang about six feet into the air, executed a series of gyrating movements and landed on his hind legs in his true character, that of a muzzled brown bear!

H. Massac Buist.

French Aeroplaning Grounds.

Save for the fact that the aeroplaning grounds of France are all more or less flat expanses, as free from trees and other obstructions to landing as possible, a tour of these grounds has surprised me by the variety of minor differences that distinguish each from the other. For instance, at Châlons Camp, where Henry Farman and Moore-Brabazon fly, the aeroplane sheds are situated on a low corner of a more or less square tract of country that has been marked out from the huge camping ground. Starting from the shed the machine has to negotiate gradually rising ground in whatever direction the wind dictates that it shall be steered. So far, Henry Farman is the only aeroplanist in those parts who has been able to leave the ground when the machine was actually going uphill, but on those occasions he had a good wind straight against him. Moore-Brabazon has to scud along the ground until he gets on to the higher land, and usually does not "take off" until he comes to the dipping of the way.

Issy and Juvisy Contrasted.

On the other hand, nothing could be more absolutely flat and free from growth than the large parade-ground at Issy-les-Molineaux. It is absolutely free from obstructions in the way of trees and so forth, but in extent it is the smallest of the leading expanses on which experiments in flight take place in France. Consequently, as aeroplanists travel very fast in flight they find that they have to keep constantly on the turn when at Issy, and that is a process they do not relish. The French Aerial League's ground at Juvisy is larger in extent if one reckons by the largest circuit that it is possible to make within its bounds; but the surprising feature of this particular choice of terrain is that a stream runs through part of it, so that as pupils naturally do not traverse the water in the course of their essays, because they never know whether they would be on or off the ground when they came to the river—and to be running along the ground at that moment would mean "a spill"—they have to make their essays at flight over only part of the ground, which gives them a circuit of about two kilometres, or a mile and a half only.

Suitable Districts in England.

The ground in the neighbourhood of Buc, near Versailles, is not an official aeroplaning place, but part of the estate of M. Esnault-Pelterié's family, composed of a series of flat fields void of fences in the French fashion. The fact that this territory proves suitable not only for M. Esnault-Pelterié's monoplanes but also for bi-planes somewhat on the Wright principles, as used by Mr. Maurice Farman, brother of Henry, is of particular interest to Britishers, in that I was there struck for the first time with the fact that in East Anglia and Yorkshire there are plenty of expanses equally suitable for purposes of attempting flights. Of course, you can scarcely go a motor tour through France without happening about every fifty kilometres or so on ideal land for practising with aeroplanes in these initial stages of the science of practical flight, when it is still needful to be furnished with the means of safe

landing at any moment. On the Paris to Bordeaux road I lately passed several such expanses and, what was even more surprising, in such a cross-country journey as that along the French side of the Pyrenees, we came many times on grounds eminently suitable for aeroplaning.

The Aeroplanist's Mecca.

The Mecca of aeroplaning during the winter and early spring is Pau, where permanent winter schools of aviation have been established through the enterprise of the local authorities, who have leased two separate grounds for a long number of years, and offer such facilities to anybody owning an aeroplane and desiring to fly with it that the experimenters are practically at no expense save for wages, petrol, and wear and tear. The farther of the two grounds from the town is that which is being used for teaching pupils to use the Wright aeroplane. It is situated at least eight miles out, and is a tedious drive occupying fully an hour and twenty minutes by horse-drawn vehicle, but taking only about twenty minutes by private motor car. As the expanse is sufficiently large to allow of flights of about seven kilometres to the circuit without going beyond the bounds of the grounds it may be asked: Why has it been necessary to lease a second ground? The moment I examined the ground at Pont Long the answer to that question was apparent, for the land abounds in hummocks and tufts and mounds, and kindred irregularities of surface to such a surprising extent that it would be absolutely impossible to manœuvre a wheeled aeroplane over it. The performances of the American aeroplane in these circumstances furnish a complete answer to any criticism that may be launched against Messrs. Wright for dispensing with the use of wheels and employing runners.

Steering Apparatus.

They do everything with the utmost deliberation in connection with aeroplaning, and consequently there are occasionally some curious contrasts between the behaviour of man and machine, because scarcely any types fly at less than forty miles an hour. Owing to the employment of lever or tiller control as distinct from the motor-car steering-wheel control favoured by the French School, the Wrights and their pupils are able to fly with the more deliberation, for their levers are more sensitive than wheel-and-screw manipulation can be. It is to be regretted that no Wright aeroplane was shown at the Aero Exhibition held at Olympia, Kensington, in the latter half of March, because such an exhibit would have afforded many interesting points of contrast with the Voisin (Farman) type of bi-plane which is the most widely familiar representative of the French School, the example shown being the well-worn machine with which Mr. J. T. C. Moore-Brabazon learned to fly. His new one, by the same makers, differs somewhat in appearance because the two main planes are spaced six feet six inches apart in place of four feet four inches, as in the machine exhibited. The change follows the Wright practice, the American inventors having found that at any closer spacing the compression of the air caused by the bearing of the upper plane was communicated to the upper surface of the under plane, with consequent loss of efficiency.

H. Massac Buist.

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Farthest South.

BY L. C. BERNACCHI.

Physicist of the "Southern Cross" and "Discovery" Antarctic Expeditions.

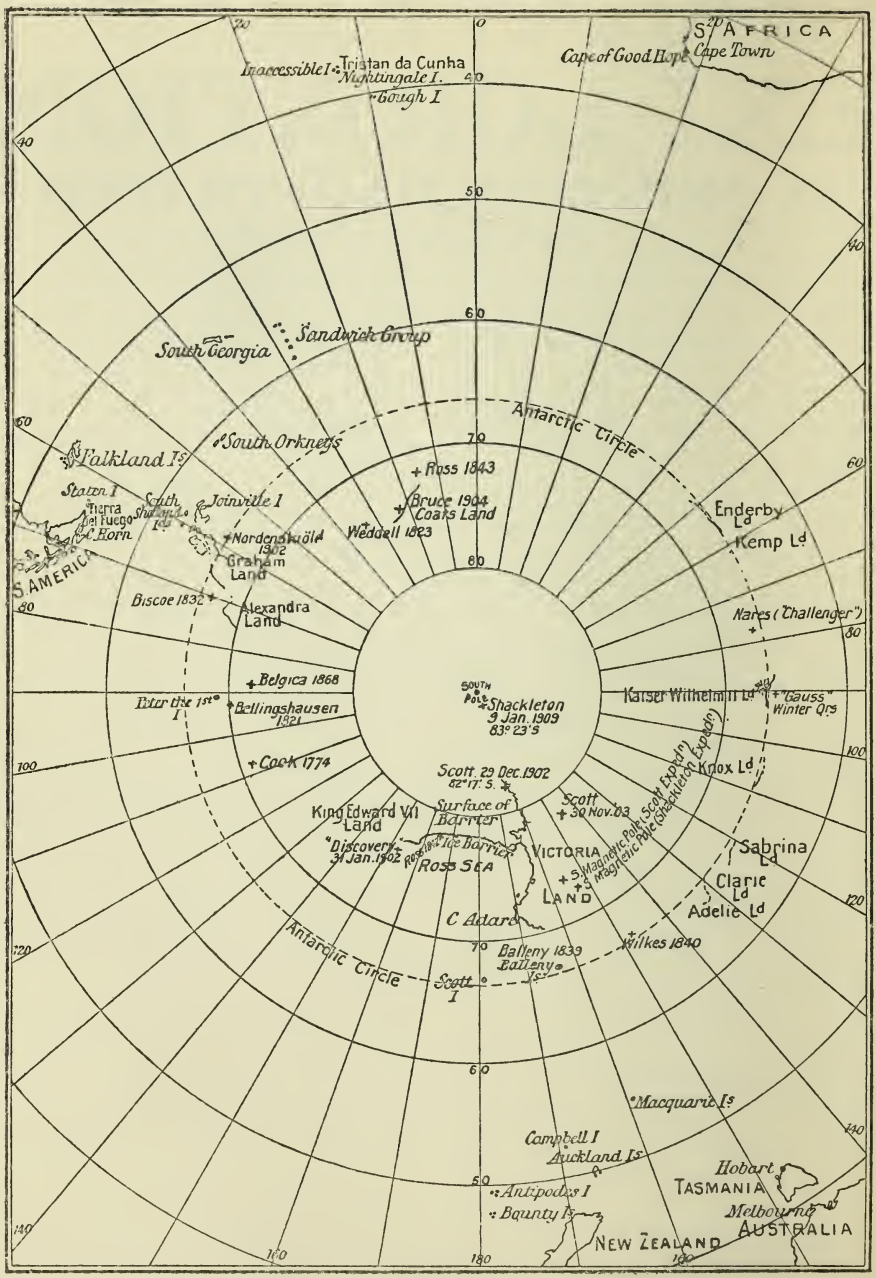
"We have sailed from your farthest West, that is bounded by fire and snow,
We have pierced to your farthest East, till stopped by the hard set floe.
We have steamed by your wave-worn caverns: dim, blue, mysterious halls,
We have risen above your surface, we have sounded along your walls.
And above that rolling surface we have strained our eyes to see,
But league upon league of whiteness was all that there seemed to be.
Ah! what is the secret you're keeping, to the southward beyond our ken?"

Lieut. E. H. Shackleton, "To the Great Ice Barrier," in *The South Polar Times.*

WHEN Lieutenant Shackleton wrote the above lines on board the *Discovery* in the winter of 1902, prior to his sledge journey south with Captain Scott, when latitude 82° 16′ 33″ S. was attained, he little knew, he dared not hope, that he himself would be the one six years later to solve the secret beyond the grim Ice Wall; the secret of a great, high, silent continent, extending in unbroken continuity from Cape North, in latitude 71° S., to the Pole itself, and probably even beyond the Pole, far over towards Cape Horn and South America.

Shackleton's exploit is one of the most magnificent in the annals of polar exploration, and places his expedition in the front rank. The striking results, both geographical and scientific, achieved in the comparatively short space of fourteen months spent by his expedition within the Antarctic Circle are simply remarkable. The pluck and determination of himself and his companions have rarely been surpassed in the history of polar exploration.

I saw a great deal of Lieutenant Shackleton before his departure, and witnessed his organizing ability, his personal attention to every small detail. Seldom has an expedition so entirely depended upon the individual


S. AFRICA
Cape of Good Hope
Cape Town
Inaccessible I.
Tristan da Cunha
Nightingale I.
Gough I
South Georgia
Sandwich Group
Antarctic Circle
South Orkneys
Falkland Is
Ross 1843
Bruce 1904
Coats Land
Weddell 1823
Enderby Ld
Kemp Ld
Staten I
Tierra del Fuego
C. Horn
South Shetland Is
Joinville I
Nordenskiöld 1902
Graham Land
S. AMERICA
Biscoe 1832
Alexandra Land
Naires ("Challenger")
Belgica 1868
Bellingshausen 1821
Peter the 1st I
Kaiser Wilhelm II Ld
"Gauss" Winter Qrs
SOUTH POLE
Shackleton 9 Jan. 1909 83° 23' S
Cook 1774
Scott 29 Dec. 1902 82° 17' S.
Knox Ld
Scott 30 Nov. 03
Surface of Barrier
King Edward VII Land
"Discovery" 31 Jan. 1902
Ice Barrier
Ross Sea
VICTORIA LAND
Sabrina Ld
Clarie Ld
Adelie Ld
C Adare
Wilkes 1840
Balleny 1839
Balleny Is
Scott I
Macquarie Is
Campbell I
Auckland Is
Antipodes I
Bounty Is
Hobart
TASMANIA
Melbourne
AUSTRALIA
NEW ZEALAND

work, the initiative, the almost unaided efforts (in its earliest stages) of its leader. The result is an eloquent testimony to what can be done with comparatively limited means by a persistent and resourceful personality.

Owing to the difficulty of effecting a landing on King Edward VII. Land, a difficulty entirely endorsed by the experience of the *Discovery* in the same locality, Lieutenant Shackleton established his winter quarters at Cape Royds, on the west coast of Ross Island, at the western end of the Great Ice Barrier, about twenty miles to the north of the *Discovery's* winter quarters. The winter appears to have been milder than the *Discovery* winters at Hut Point, the latter being colder probably because of the closer proximity to the surface of the ice barrier. An interesting feature of the winters at Cape Royds was the brilliant aurora displays. These were comparatively poor at the *Discovery* winter quarters, and coincided with a minimum sun-spot period. The intensity of these aurora displays, therefore, appears to depend as much upon the seasons as upon geographical distribution.

The "spring" sledging commenced remarkably early, namely, on August 12th, nearly a fortnight before the return of the sun, when the temperatures must have been very low (—57° F. at one time). These early sledge journeys are serious undertakings, and involve much misery and sleepless nights from the intense cold. The preliminary journeys, mainly for the purpose of establishing depôts, were continued until mid-October. Then there appears to have been a period of about three weeks' rest, in preparation for the long and really serious journey south. The word "rest" is probably a misnomer, for undoubtedly those three weeks represent an infinite amount of care and attention to detail. The southern party set out on November 3rd, a day later in the month than Captain Scott's party in 1902, and continued just a month later than Captain Scott, namely, until March 4th. It covered the enormous distance of seventeen hundred and eight miles in one hundred and twenty-six days—an average of fourteen miles a day.

Only those who have taken part in such a journey can realise what it involves: the dogged heavy pulling of sledges day after day, week after week, month after month; the dreary, uniformly white scenery, the occasional attacks of painful snow blindness, the blistered faces and sore lips from wind and sun, the cold shivering sleepless nights in the fur bags, and worst of all, the inevitable scarcity of food on the return journey. The best description of the difficulties and hardships of the sledge-traveller is given in Captain Scott's narrative of the *Discovery* expedition. His description of a cold night is very typical: "With the temperature at —48° F., we can make a shrewd guess as to the sort of night that is before us. The first half-hour is spent in constant shifting and turning as each inmate of the bag tries to make the best of his hard mattress, or to draw

the equally hard covering closer about him. There is a desultory muffled conversation, broken by the chattering of teeth. Suddenly the bag begins to vibrate, and we know that someone has got the *shivers*. It is very contagious this shivering, and paroxysm after paroxysm passes through the whole party. . . . . Sledging draws men into a closer companionship than any other mode of life. In its light the fraud must be quickly exposed, but in its light also the true man stands out in all his natural strength. Sledging, therefore, is a sure test of a man's character, and daily calls for the highest qualities of which he is possessed."

I have taken the following short extracts from my own original pencilled diary, written on the sledge journey over the Barrier to the south-east, as typical of the life :—

"November 19th, 1903.—We turned out at 6 a.m., a bleak wind blowing from the south-west with low surface drift, and all have to wrap up in wind clothes and get into fur boots. Royds is badly snow-blind this morning—quite unable to see, and has to walk alongside the sledge. We got under weigh at 8.25 a.m., dragging heavy, but improved slightly in the afternoon. Lunched as usual and camped for the night at 6.10 p.m., having completed 9.3 geographical miles in eight hours thirty-seven minutes' marching. Temperature just below zero."

"November 26th.—. . . . Total mileage to-day only 6.7 geographical miles. It seems doubtful whether we shall even do a hundred and sixty geographical miles outwards, and we had expected at least two hundred. It is extremely disappointing; however, we march nine hours a day and with such heavy dragging and short food allowance we cannot possibly do more. Our daily food allowance is quite insufficient and all suffer from hunger. Our biscuit, so as to make what remains last out for our return journey, is now less than three per day per man. Food, food, food, is what we think of all the livelong day."

There is very little doubt that man requires more food in a polar climate than in a temperate one, and the arduous nature of these long daily marches, continued as in Lieutenant Shackleton's case for four months, makes it imperative to have ample food supplies. My own opinion is that forty or forty-two ounces is not too liberal as the daily allowance per man. The falling off to twenty ounces a day and even less towards the end of Shackleton's journey, and the long forced marches, must have thrown a terrible strain upon the body, and was perhaps more responsible for the dysentery from which the party suffered than the pony flesh.

Professor David gives a graphic description of Lieutenant Shackleton's return from the southern journey :—"He was long overdue, and it was feared that he had met with an accident. The *Nimrod* went in search of him. The captain discovered two dots on a barrier in the distance, and then he saw a heliograph flashing. The dots developed into Lieutenant

[John Thomson, Phot.

Lieutenant E. H. Shackleton.

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Shackleton and Wild; where were Marshall and Adams? A boat put off and the explorers were taken aboard. Their shrunken shanks and lean faces told a tale of severe work and privation. Yet after eating a lordly dish of fried bread and bacon Lieutenant Shackleton, though he had had no sleep for twenty-four hours, immediately started back over thirty-three weary miles with the relief party to Marshall, who was ill with dysentery brought on by the diet of horseflesh, and had been left in charge of Adams. It took a day and a half to reach them. Then all returned to the ship exhausted, but happy in the successful termination of the great enterprise. Lieutenant Shackleton had performed the remarkable feat of sledging ninety-nine miles, with little sleep, in three days at the end of a journey of seventeen hundred miles."

The following is an extract from my personal diary of the return of Captain Scott, Shackleton, and Wilson, after their journey south:—

"February 3rd, 1903.—Skelton and I set out on ski at about 8.50 a.m. this morning to meet the captain's party. We expected to have to go out some seven miles, and took our dragging harness with us in the event of there being no dogs remaining. . . . . We continued out for about two hours, and were commencing to doubt whether the party had really been seen the night before from Observation Hill, when Skelton sighted them about a mile and a half ahead, near one of our depôts. As we approached closer we could see there were no dogs, and that only two of the party were pulling the sledges; the third, who proved to be Shackleton, was walking alongside. We came up with them soon after noon, and a very happy meeting took place; they were, of course, immensely delighted to see us. Long beards, dirt, swollen lips, peeled complexions, and bloodshot eyes, made them almost unrecognisable. They appeared to be very worn and tired, and Shackleton seemed very ill indeed. They were eager to hear all the news, and were surprised to learn of the arrival of the relief ships. We had the tent pitched in a few minutes and some cocoa brewed, and while thus employed we soon heard all the news. They had attained to latitude 82° 17′, after great difficulties. . . . . Soon after leaving the Bluff some of the dogs commenced to show signs of weakness, and these either died or were killed. Some of the weak dogs were even carried in sleeping bags on the sledge, and I am told it was most pathetic to hear these poor beasts now and then emit a feeble bark from the bag. My own dog, "Joe," who was born within the Antarctic Circle in 1898 on the *Southern Cross* expedition, was one of the last to die. Shackleton brought me back one of his teeth as a souvenir!

"Shackleton had been unable to do much pulling of the sledges since they had turned back. At one time he was in a serious condition. A few anxious days were experienced just before picking up depôt B. They had practically no food left, and had some difficulty in finding the spot."

This time Lieutenant Shackleton seems to have come through the great sledge journey which constitutes the most striking achievement of his expedition as well as, if not better than, any member of the southern party. The journey, so far as one can judge, was both longer and more arduous than that carried out from the *Discovery's* winter quarters. At his farthest south Lieutenant Shackleton was only ninety-seven geographical miles from the South Pole. The latitude reached is the highest ever attained in either hemisphere—actually the nearest approach to either Pole, the farthest north being latitude 87° 6′, attained by Lieutenant Peary in 1906. This is seventy-seven geographical miles short of Shackleton's record. He has surpassed the *Discovery* record by three hundred and sixty-six geographical miles.

This journey alone is a great triumph for Shackleton and his three companions—Lieutenant Adams, R.N.R., Dr. Marshall, and Mr. Wild (like Lieutenant Shackleton an old *Discoverer*). But the triumph is not only personal; it is a British triumph calling forth all our feeling of national pride. The polar record for a high latitude had been lost to British explorers since 1875, when Admiral Markham reached the then highest north latitude. Since then the honour has fallen in turn to Norway (Nansen), Italy (Cagni), and the United States (Peary). Writing of Shackleton's expedition and the difference between geographical and statute miles in the measurement of the distance from the farthest point south to the Pole, Captain Scott says: "In whatever measure that remaining distance is computed, it is for England to cover it!"

Infinitely more important, however, than this record, and more valuable, is the fact that the party left the low-level ice, climbed a great glacier one hundred and twenty miles long and forty miles wide, and ultimately reached a plateau rising to an altitude of ten thousand five hundred feet, and probably extending to the Pole and far beyond. This places beyond doubt the existence of the great Antarctic Continent, and shows that it is not broken up into an archipelago of islands. Further details as to the nature of this continent and the long coast-line explored by Lieutenant Shackleton will be awaited with interest, and may throw light on the supposed connection between Graham Land, on the American side, and South Victoria Land. The important geological work carried out by Professor David, F.R.S., the discovery of coal measures, limestone, and the sedimentary rocks, etc., may throw considerable light on the theory of the probable connection in remote geological epochs of Antarctica with Australasia and South America. Professor David is reported in the *Times* of March 29th to have said that "The marine fauna near Cape Royds bear a resemblance to the types of animal life of the coal measure series found in Australia and Tasmania."

On the *Discovery* expedition, examination of the mosses secured along

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[By permission of Messrs. Smith, Elder & Co., from "The Voyage of the *Discovery*."

Emperor Penguin Rookery, Ross Island

the coast of South Victoria Land resulted in the detection of half-a-dozen specimens of a small dark blue springtail (*Collembola*). The species was an *Isotoma*, also discovered in the South Orkney Islands by the *Scotia* expedition. The knowledge of the distribution of these insects is too incomplete to elucidate any details of ancient geography; but Dr. George Carpenter, who has described the *Isotoma*, says: "The existence of a species of this order of wingless insects in South Victoria Land—a species belonging to a genus widely spread in the northern hemisphere—cannot but support the theory of a former extension of the Antarctic Continent. And the further fact that the species is closely related to a Fuegian insect is consistent with the view that there may have been a southern route of migration between eastern and western lands." The north-western sledging expedition under Professor David will perhaps throw equally important light on the structure of Antarctica, for the explorers penetrated some two hundred and sixty miles inland, in all probability over a high plateau similar to that farther south.

The idea of a great Antarctic continent probably arose at a very early date, and was persistently delineated by the map-makers. A fanciful idea prevailed among cartographers that there must be a great mass of land to the south to balance the known land to the north. It was long before the facts actually ascertained by Vasco da Gama, Magellan, Drake, and others, ceased to be distorted by the map-makers. One enterprising Portuguese pilot at the beginning of the seventeenth century actually obtained an order from the King of Spain to prosecute a voyage to annex the South Polar Continent, and to convert its inhabitants to the true faith!

The Dutch navigator Tasman, the discoverer of Tasmania and New Zealand in 1642, was the first to lift the veil of mystery from the southern hemisphere. Other expeditions followed in quick succession until the time of Captain James Cook, who in 1773 crossed the Antarctic Circle for the first time and pushed south to latitude 71° 10′. Cook's voyage to the south was one of vast importance. He exploded the idea of a populous fertile southern continent, and showed that whatever land existed there must be one of desolation, buried under a mantle of ice and snow. The vast extent of the boisterous southern sea was revealed and the limits of the habitable globe determined.

The first definitely to discover land within the Antarctic Circle was the Russian navigator Bellingshausen in 1819. The remarkable development of the great whaling and sealing industries in the southern seas which flourished during the early half of the nineteenth century was responsible for the further prosecution of geographical discovery. The journeys of the enterprising whaling commanders, Weddell, Biscoe, and Balleny, added considerably to our knowledge of the southern regions. Weddell in 1823

with his small brig, the *Jane*, reached a record high latitude, 74° 15′ S. This was not beaten until nearly twenty years later by Captain (later Sir) James Ross, who, with the *Erebus* and *Terror* in 1842 reached latitude 78° 11′, after exploring the coastline and high mountain ranges of Victoria Land extending from 71° S. to 77½ ° S., thence discovering the lofty volcanoes Erebus (active) and Terror, and further the wall of ice he named the Great Ice Barrier, stretching eastwards four hundred geographical miles. The French sent out an expedition about the same time under Dumont D'Urville, who discovered Adélie Land, and the United States an expedition under Captain Wilkes, whose discoveries have been somewhat discredited.

A period of comparative quiet followed until 1898, when Sir George Newnes, Bart., sent out an expedition under Mr. Borchgrevink. This expedition was the first to establish itself on Antarctic land and the first to experience an Antarctic winter. The last National Antarctic expedition under Captain R. F. Scott, R.N., is too recent to require lengthy reference. It constituted the most serious, detailed and prolonged attack upon the Antarctic regions ever undertaken. The expedition sailed in 1901 and returned in 1904, after having spent more than two years continuously within the Antarctic Circle. The results, both geographical and scientific, were extremely important and comprehensive. The huge scientific volumes (already ten in number) give some indication of the scientific results. The work of the expedition may be summarised as follows :—

(*a*) The discovery of the extension of Victoria Land from 77½° S. to 83°, and an advance of three hundred and fifty geographical miles towards the Pole, namely to 82° 16′ 33″ S.

(*b*) A careful survey of the edge of the Great Ice Barrier, and the discovery of new land (King Edward VII. Land) at its eastern extremity, five hundred miles from Mount Erebus.

(*c*) A long sledge journey across the western mountains to the inland ice, and thence over the plateau (nine thousand feet) for over two hundred and fifty miles.

(*d*) A long sledge journey across the Great Ice Barrier surface to the south-east, and important magnetic observations.

(*e*) Continuous magnetic observations over a period of two years, constituting a real and important advance in our knowledge of terrestrial magnetism generally.

(*f*) Meteorological observations extending over two years.

(*g*) Biological observations and the discovery of innumerable new species of marine life.

(*h*) Geological observations and the discovery of fossils and sedimentary formations in a high latitude.

Lieutenant Shackleton has most ably continued where the *Discovery* expedition left off. His successes are in every instance a continuation of the same lines of investigation, and the direct result of the enormous work and experience gained by the former expedition. Undoubtedly the vicinity of Victoria Land, due south of New Zealand, offers the most promising field for the penetration of the south polar regions, owing apparently in the first place to a comparatively ice-free ocean after the principal zone of pack ice has been pierced, and, secondly, to the fact that this ocean extends so far to the south before land bars further progress. The advance south by other explorers at other points of Antarctica has been stopped much further north by their meeting land or ice barriers. At the same time there are still wide gaps of longitude where no attempt to penetrate south has yet been made, and where favourable conditions similar to the Ross Sea may exist.

I have mentioned the importance to science of the *Discovery* magnetic work. The western journey under Professor David and Mr. Mawson promises to be a most valuable and important addition. The position of the south magnetic pole is given as latitude 72° 25′ S., longitude 154° E. The nearest approach to this is the position in 1900, deduced by Dr. Charles Chree, F.R.S., and myself, from my own observations on the *Southern Cross* expedition, which gave the position as 72° 40′ S., 152° 30′ E., a difference of only fifteen miles to the south, and twenty-six miles to the west of Shackleton's position. The more numerous series of *Discovery* observations placed the magnetic pole in 72° 51′ S., 156° 25′ E., or twenty-six miles to the south, and forty-two miles to the east of the latest determination. The position deduced from Ross's observations sixty-eight years ago was 75° 5′ S., and 154° 8′ E. Gauss's purely theoretical value calculated in conjunction with Erman between 1830 and 1840 placed the pole in 72° 39′ S., 151° 38′ E.

The *Discovery* observations reveal a large regular diurnal change in the magnetic forces at and close to the magnetic pole, and also irregular changes of considerable extent. It is most probable that the position of the pole changes even in the course of twenty-four hours; that is, the spot where the dipping needle stands vertical describes an oval curve during the day several miles in diameter. The difficulties attached to instrumental observation in the vicinity of the magnetic pole are very great, since horizontal directive force of the magnetic needle breaks down, and the minutest care must be exercised in the determination of the magnetic meridian.

All the statements which have appeared regarding the scientific results of Lieutenant Shackleton's expedition must be accepted with a certain amount of caution. It is so very easy to acquire totally wrong impressions. Such statements, for instance, as the determination of the magnetic pole

by "elaborate triangulation" are probably misleading. The statement that rotifers revive after a few minutes' thawing after being frozen in ice for three years is not so startling as at first appears. It is well-known that many rotifers survive through desiccation and even deprivation of air in a vacuum tube, also exposure to —20° C., and hot water at 70° C. The statement that the marine fauna near Cape Royds resembles the carboniferous fauna of Australia must be accepted with considerable reserve. Professor David's geological report will undoubtedly prove of immense value, and the meteorological observations carried so far south ought finally to settle the interesting question of the Antarctic anti-cyclone. Professor David's announcement that the chief Antarctic bergs are snow-bergs appears to confirm the conclusion already put forward regarding the nature of the ice barrier, namely, that this ice had not been formed from the glaciers but from sea ice "by the accumulation of layers of snow upon the surface more quickly than the ice was dissolved by the sea beneath." At the same time it is unwise to lose sight of the undoubted fact that a truly enormous volume of land ice flows down eastward through the great glaciers on to the barrier surface, from the high land extending almost due north and south for a distance of at least five hundred geographical miles.

From what I have written of the rich and truly valuable results of the National Antarctic and the Shackleton expeditions readers may conclude that very little more remains to be done in the Antarctic. This impression would be deplorable and totally incorrect. As a matter of fact, serious scientific exploration may be said to have only commenced. Record-breaking of a sensational character will not be the object of future expeditions. The area of present knowledge is almost limited to the vicinity of South Victoria Land—a comparatively narrow line. There still remain nearly two million square miles absolutely unknown; there still await solution magnetic, physical, geological, biological, and deep sea problems of the greatest interest and value to human knowledge. At present Dr. Jean Charcot, who has already done such good scientific work in the Antarctic, is somewhere south of Cape Horn in the direction of Graham Land. He will, no doubt, bring home a rich harvest of new facts. The next British expedition will probably again penetrate towards the Ross Sea by means of a large number of Manchurian ponies (why not Tibetan yaks!). The explorers may hope to cross the Pole itself, and perhaps journey some distance beyond. Even more important would be a really extensive journey from the vicinity of Cape Adare round towards Adélie and Wilkes Land, or from King Edward VII. Land south, and then round in a long deep sweep and out towards McMurdo Sound. There is ample room for all, of whatever nationality, and nothing but a friendly rivalry need exist between different expeditions.

[L. C. Bernacchi, Phot.

View of Mount Melbourne, South Victoria Land.

[L. C. Bernacchi, Phot.

A Fresh-Water Pond.

In the fresh-water ponds on Ross Island the biologist of Mr. Shackleton's expedition found abundant microscopic life.

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Through Austria's New Provinces.

By CLIVE HOLLAND.

For travellers who have tired of Switzerland, Italy, and the more beaten tracks of European travel there are few more inviting parts of south-eastern Europe than Herzegovina and Bosnia. Here where the East impinges on the West one finds much that is interesting and picturesque, and fresh at least to those who have as yet no knowledge of the Orient. There are two main ways of reaching these new Austrian provinces—from the north, whence one enters Bosnia by way of picturesque Banjaluka; and from the south, by way of delightful, semi-tropical Ragusa, with its quaint port, wide Stradone Corso, and other interesting features. Travellers by the first-named route will probably have come *via* Ostend, Vienna, and Buda-Pesth; those adopting the latter (as we did) *via* Ostend, Vienna, Trieste, and down the Adriatic in one of the fine Austrian-Lloyd steamers hugging the ever-enchanting Dalmatian coast.

The railway which carried us through Herzegovina into central Bosnia has its southern terminus at Gravosa, the port of Ragusa, although it has a short further extension in a south-easterly direction to Castelnuovo. The line is of narrow gauge and single track, but it is nevertheless one of the most remarkable triumphs of modern railway engineering skill the world has yet seen. From Gravosa it gradually climbs, by a series of winding curves almost like those of an Alpine road, the mountain range which lies but a few miles inland from the coast and forms a barrier that must be traversed before the frontier of Herzegovina is reached. Thence along the frontier to Metkovič the line follows a fairly level course among the mountains, and from the train one gets views of fine open scenery —deep valleys and rock-strewn mountain sides skirting the wonderful Popova-polje, which in winter is a lake some twenty miles in length and of considerable depth, but in summer disappears entirely, leaving in its place some of the most fertile land in the Balkan region.

All the way up to Metkovič there were many pictures for the camera; solitary Herzegovinian men, women, and girls in picturesque costumes, guarding herds of goats or tiny sheep, with here and there groups of men and women ploughing with oxen, sometimes the women and girls actually drawing the plough. But alas for the photographer, although the single daily train was an express only by courtesy, it halted seldom, for towns or villages of sufficient importance are few and far between. Often the "town" consisted of no more than a group of tumble-down looking huts, huddled at the base of a hill, with sometimes a ruined castle perched above them—fit home for a brigand lord.

For many miles through Herzegovina after the train leaves Metkovič the scenery is dreary and almost without life. Here and there one catches sight of the rushing Narenta, and occasional cascades tumbling down the hillsides, a few small sheep cropping the stubble, or an eagle poised in mid-air on seemingly motionless pinions, or in rocket-like flight outdistancing the train. Mile after mile of the way up to Mostar lies through a country of scattered boulders and scrub, very similar in character to portions of the desolate South African veldt. Here and there tiny fields, many of them less than half an acre in extent, which have been wrested by laborious toil from the boulder-encumbered hillsides, are to be seen; but they are almost pathetic in their rarity and cannot beautify the landscape. Maize, potatoes (introduced in comparatively recent times), and tobacco, with an occasional patch of rye or corn, form the principal crops. But on approaching Mostar, the country becomes less bare. Woods clothe the hillsides, and wild walnut and cherry trees mingle with others more common to the forest.

Mostar, the ancient capital of Herzegovina, possesses some twenty thousand inhabitants and is a delightfully quaint and interesting place. Nowadays it is the business centre for the province, and the seat of two bishoprics, one of the Greek and the other of the Roman Church. The city itself is built on the lower slopes of the green-grey hills of the Hum and Podveležž, and on both banks of the rapidly-flowing Narenta. The two halves are united by two bridges —one the ancient and picturesque stone bridge of a single span, one hundred feet in width, with the summit of its "saddleback" some seventy feet above the normal level of the river which flows beneath; the other a much less picturesque iron structure completed some thirty years ago.

Seen from either shore Mostar is a wonderfully inviting place for the traveller and artist. And as one gazes across the grey-green river at the crumbling walls and towers and irregularly picturesque roofs, the line

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[Clive Holland, Phot.

Herzegovinian Women of the Lower Middle Class.

[Clive Holland, Phot.

Old Turkish Bridge, Mostar.

of which is broken up by the domes and slender minarets of many mosques, it is difficult to imagine oneself on Austrian and not on Turkish soil. In the two chief long streets, especially in the Glavna-ulica, with its background of distant hills, we found so many interesting eastern types that our camera was seldom idle. Groups of Turkish women in wide trousers of striped, checkered, or coloured cotton, regarded us furtively through the two eyeholes or over the top of their yashmaks; Turks old and young were to be seen sitting outside the kavanas (cafés), or in the shadow of the tiny, open-fronted shops; Herzegovinian women stood about in their picturesque costumes of white, blanket-like material, with short skirts, full, long, coat-like jackets, small close-fitting caps, head shawls, coloured aprons, and often coin-encrusted filigree head ornaments; while pretty but tatterdemalion children—the youngest, as the day was hot, almost garmentless—played in the gutter, down the by-lanes leading to the river bank, and in the grass-grown courtyards of the mosques.

The streets of Mostar are decidedly clean—for an Oriental town; but the houses and shops, some of the former centuries old, are mostly primitive, and the bazaar is inferior in size and interest to the more famous one at Sarájevo. One can reach the bazaar by way of the Glavna-ulica and the ancient bridge which gives its name to the city, Mostar meaning the City of the Bridge. The bridge itself on either side has so steep an inclination to the summit that vehicular traffic over it is impossible, and even the sure-footed and often heavily-burdened mules who struggle up and down its rough-paved path—which is only some twelve feet wide—seem as though they would scarcely accomplish the feat in safety.

Not far from the western end of the bridge is a weed-grown picturesque cemetery, with here and there bushes of a blood-red flower (something in the nature of japonica) half burying the turban-capped tombstones of the men and the plain ones of the women. Here one finds that element of combined neglect and picturesqueness which marks the Turkish cemetery in all small and even in most large towns.

From the cemetery back towards the railway station runs a picturesque road with several rural wayside kavanas. The intrusion of a giaour with a camera into one of these was not openly resented, though it evidently constituted a disturbing element to the chess and backgammon-playing *habitués*, the beards and gravity of some of whom were portentous. Slav was the only tongue understood, but the few words at our command speedily procured kava (coffee), the excellence and aroma of which have seldom been rivalled in my experience. Outside, under the fig trees, an ancient and picturesque Turk was all the while grinding the fragrant berries in a primitive mill, which accounted for the excellence of the beverage, which cost but fifteen heller—the equivalent

of three halfpence—for a pot containing three or four cups. It was a case of straight from the mill to the coffee-pot, very much to the advantage of the consumer.

It was a hot afternoon, and in the tinkling rijeka (brooklet) which ran just outside this vine-trellised, tumble-down kavana standing in its picturesque though neglected and overgrown garden, lay bottles of water to keep cool, for most of the Moslem inhabitants of Herzegovina and Bosnia, though gradually undergoing "Magyarisation," are abstainers from wine and spirits. Inside the kavana, in our honour, a gramophone had been started by the pretty daughter of the proprietor, a girl of about sixteen, dressed in loose, short trousers like those of a Zouave, in dark blue cotton stuff, a chemise of transparent muslin, worn under a white cloth bolero jacket beautifully embroidered in gold thread, and to crown all a jaunty little red fez perched upon her mass of jet black hair braided in neat, "coronet" fashion. This gramophone, with its "Merry Widow," "Bohemian Girl," "Geisha," and even "Gondoliers" records, and other pieces by Slavonic composers, did more to make us comprehend how near East and West have been brought by scientific and other modern inventions and developments than anything we had yet heard or seen. The fact that the young girl who took so much pride in the gramophone was (so a German-speaking Turk told us) destined for a harem in the near future by unacknowledged purchase or otherwise, carried the East back many centuries in our minds.

Herzegovina leaves upon the mind of the traveller an impression of a country out of which at the present day the best is being made. It is only fertile in patches, and most of these—except where the land is in a valley—have been wrung from Nature by a people who are physically well-knit and strong, industrious, intelligent, and hopeful, the latter virtue being not the least valuable asset in the character of a race destined to occupy a desolate, rocky land, bleak and sun-stricken by turns. There is excellent fishing in most of the lakes and rivers, and chamois hunting. The traveller afoot over the hillsides and through the scrub will do well, however, to keep a look-out for scorpions, of which there are many, and poisonous snakes, which are fairly numerous. From about the middle of June till the end of September the temperature is only comparable to that of summer on the Indian plains. Mosquitoes are a curse, and sleepless nights—especially in the native gostionas (inns)—usually follow arid and scorching days.

The way by road or rail from Mostar *via* Jablanica to Sarájevo is in vivid contrast to that from Gravosa to Mostar. The eighty-four miles which separate the capital of Herzegovina and Sarájevo took nearly nine hours to cover by the "express." But to make use of a phrase often found in criticisms of the drama, "there was not a dull moment."

Nowhere in Europe or elsewhere have I found so much variety or grander scenery. The arid kopjes and scrub of the earlier part of the journey were left behind, and as we entered the defile through which the grey-green Narenta rushes madly onwards to the sea, the view held us spell-bound. As the line traverses the hillside above the river one gazes down at the foaming rapids and up at the white, mist enshrouded cascades. The train slowly crawls up startling gradients and along the edges of precipices on its way north-eastward, permitting the traveller to obtain glimpses of a series of wonderful mountain peaks, some capped with snow, others black and forbidding, cleft with deep fissures, as though some Titanic giant had riven them apart. Much of this beauty and wonderland of natural scenery is crowded into the space of less than a couple of hours' journey after leaving Mostar.

Then commences the climb in maze-like convolutions up the sides of the mountains which form the Prenj watershed, until picturesque and well-shaded Jablanica is reached, and finally the line crosses the plateau of Ivan Planina, the ridge of which forms the watershed between the Black Sea and the Adriatic. As one traverses the saddle of Ivan Planina —slowly, because of the gradients which in some places are so steep as to necessitate toothed rails and cogs on the engine—on the way to Sarájevo, there is a fine panorama spread out of peak upon peak, some of them ten thousand feet in height and clad with eternal snow. Waterfalls formed by the melting snow of the lower slopes are everywhere, and beautiful prospects of a more fertile land than that left behind are caught through the gorges as the train comes out of the numerous tunnels in its descent to Sarájevo.

The latter is a town of some thirty-five thousand inhabitants, delightfully situated on a plain sixteen hundred feet above sea level, sheltered on three sides—north, east, and south—by a belt of hills which melt away into the mountains. To the west stretches a long, wide, fertile plain to which Sydney Smith's well-known aphorism "you tickle it with a hoe and it laughs with the harvest" seems to be actually appropriate. A greater contrast to the general soil of Herzegovina could scarcely be possible; and the result is traceable in the difference of national character. In Bosnia Nature does so much for the peasant that energy in the prosecution of his life work appears to be rendered unnecessary. Even the trade of the bazaars in Bosnia is more languid and Eastern than in those of Herzegovina. In Sarájevo it is largely of the "Take it or leave it," or "It is the will of Allah!" type; whereas in Mostar, although the Eastern indolence to a certain extent is discernible in the Moslem stall-keepers, one is often pressed to make purchases.

Sarájevo itself is a delightful town, and forms an excellent object-lesson of what the Austrian occupation has done for the country and its

people as a whole. It is difficult, indeed, to imagine oneself in an Eastern city when one walks along the wide streets and boulevards of the newer town, and sees the handsome public and other buildings, the quays along the river, the asphalted side streets, fine bridges spanning the Miljačka, which rushes out of a gorge just beyond the town, and the general air of brightness and cleanliness which distinguishes the place. It is along the riverside and in the streets immediately adjacent thereto that the Austrian and other "foreign" inhabitants of the official and commercial classes have their residences. The Turks and Servians live chiefly in the picturesque shingle-roofed and often tumble-down houses on the hillsides above, and on the outskirts of the town. Seen from these hills Sarájevo presents a charming picture, full of the colour of an Eastern city. Red, grey, brown and russet-hued roofs stretch out before one, with here and there a modern building of more imposing size, while the huge copper domes of the numerous mosques (green with age or sparkling in the sun where new sheathing has been put), slender minarets, and clumps of tall cypresses and poplars, break up the lines of the picture.

But, like most other travellers who come to Sarájevo, we did not stay long in the city itself, for just outside of it, only six miles distant, is Ilidže Bad, a delightful health and pleasure resort much frequented by the Sarájevians and tourists from Austria and Hungary. All the three fine hotels, named respectively Austria, Hungaria, and Bosna, are Government property; they are situated in park-like gardens of great beauty, and are run on lines of comfort and convenience, with most moderate charges. The thermal sulphur springs at Ilidže Bad were known and used by the Romans, and their vogue has continued since those remote times through the centuries of Turkish occupation to the present day.

The most interesting, because most novel, portion of Sarájevo to the average tourist and traveller is certain to be the Carsija (Bazaar), which is a large and important one, and forms the centre of the trade of the city. It is reached by either one of the three principal streets on the right bank of the river, and at the western end of it is situated the Husref Beg Mosque, the chief one in the city, erected in the latter part of the sixteenth century. To this even giaours are admitted upon application to the custodian. Visitors have, however, to wear a pair of overshoes, and should avoid talking loudly or making remarks which may offend the susceptibilities of the Moslem frequenters. An interesting "touch" of the East is given by the call to prayer made five times daily from the galleries of the minaret of each mosque by the mûezzim, who usually possesses a fine deep resonant voice.

The bazaar itself is far superior in interest, importance, and size to that of Mostar, and consists of a perfect labyrinth of narrow streets or

lanes, on either side of which are single-storey wooden booths or stalls, while solidly-built and capacious warehouses of stone are ranged in the rear. Here in a picturesque jumble one finds tailors, shoemakers, greengrocers, saddlers, coppersmiths, second-hand dealers, bone and ivory merchants, coffee merchants, sellers of sweets, silversmiths, embroiderers, and the makers and sellers of almost everything in Oriental goods that one can imagine. In the lanes are crowds of marketing men and women, merchants, and travellers from other bazaars further East. Some of the men, many of whom are extremely handsome, wear garments which for colour and new or shabby magnificence (as the case may be) rival the gayest attire of the Bosnian women. The streets of the Sarájevo bazaar, especially on Wednesdays, when the country folk, wearing their best attire, come in from the districts round about with pack mules loaded with melons, sherbet, water in skins, oranges, figs, dates, nuts, embroidered stuffs, curiosities and what not, present a veritable kaleidoscope of life and colour. Much of the most beautiful embroidery on scarves, shawls, bodices, table cloths and similar things is worked by the women in the harems, which will account for its low price. It is still possible to get real bargains in the Sarájevo bazaar, after a little chaffering. A shawl which could not be obtained for less than a five-pound note in London or Paris is often to be had for five-and-thirty shillings, sometimes for even less.

The big towns of Bosnia are not, of course, places in which to come into intimate touch with the peasant and the most essential attributes of the national life and character of a largely agricultural race. Sorry as we were, therefore, to leave Sarájevo behind, we set out north-westward for Jajce, "the Pearl of Bosnia," the present terminus in that direction of the Bosnia-Herzegovinian State Railway. The line runs through many miles of plum orchards (for Bosnian plums are as famous, or at least should be, as "French"), and mountainous scenery, which, if less grand and wild than that of the wonderful Narenta gorge, is yet very pleasant. Typical groups of peasants, some working in the fields, others travelling with mule caravans or in curtained bullock carts along the roads, gave picturesque touches of human interest in the scene. Every now and then we could see scattered figures dotted about on the hillsides standing motionless as though fashioned in stone.

The line does not run up into Jajce itself, and a walk or drive of a mile or so is before one on leaving the train. The road leads past the famous falls of the Pliva, which tumble into a deep narrow gorge a hundred feet or more below the outlet of the lake, and then across the ancient wooden bridge and through the crumbling gateway till at last one is in a typical Moslem town. Jajce is built on the slopes of the Gola Planina, at the junction of the rivers Pliva and Vrbas, and for picturesqueness and novel

charm is hard to beat. The ancient castle crowning the isolated mountain height, on the sides of which part of the older town is built, has been the scene of much romance, fighting, and tragedy. Fragments of the old royal palace of the Bosnian rulers are incorporated in its walls. The object of many strenuous attacks, it was held by the Turks from the early part of the sixteenth century down to the year 1878. The old catacombs, which are reputed to have been originally a subterranean Christian church, are interesting ; and in the campanile of the Church of St. Luca, and some ruins of the nave of the Franciscan church, one has all that remains of the once considerable religious institutions.

Though the numerous waterfalls of the Pliva remind one of Tivoli, the town itself is purely Oriental, with its tumble-down houses with high-pitched shingle roofs rising one above the other in picturesque confusion. At Jajce we saw several girls and women with tattoo marks, some of which on the arms of the latter were in the form of a cross. This symbol " wrought into the very flesh " served as an eloquent reminder of former times when it was the custom thus to mark Christian girls so that if they were spirited away (a not unfrequent occurrence) into Turkish harems they might be identified and rescued.

None who come to Jajce should fail to visit the purely Turkish and extremely picturesque village of Jezero, situated at the head of the beautiful lake of the same name, nearly fifteen hundred feet above sea level, with romantic gorges and tree-clad mountain slopes as a background. The road from Jajce is one of the most charming in Bosnia, and as it winds its way along, first following the banks of the Pliva, rushing swiftly over its rocky bed and churning into foam and swirling eddies round moss-grown boulders and the gnarled roots of trees which have been swept away in flood time from their precarious holdings on the rocky banks, and then beside the more tranquil but by no means currentless lake, many a delightful picture is unfolded. A carriage took us, in rather more than an hour, to the outskirts of the little town, whose quaint and ruinous shingle-roofed houses, minaret of mosque, tree-enshrouded kavanas, and ancient wooden bridge, formed a picture of extraordinary interest and charm.

Here we found that the inhabitants did not take kindly to photography. The women scuttled through rickety doors and round the wooden pailings of byways to escape the camera, with their veils drawn hastily over their faces when their menkind were present, but furtively glancing at the giaour traveller and his little " black box " when the coast was clear. Even the Turkish men fought shy of the " box."

Jezero has but one inn, and that an inferior though picturesque establishment. But so excellent is the fishing in the lake, and so good the hunting and shooting (chamois, wild boars, black cock, snipe, herons,

[Clive Holland, Phot.

On the way to Sarájevo.

[Clive Holland, Phot.

On the Lake of Jezero.

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wild swans, and other waterfowl) that one can well put up with the inconveniences which arise from being on the fringe of civilization.

Superstition still hangs about Jezero as it does in many other remote villages of Bosnia, Herzegovina, and the Balkan peninsula. We were taken to see two men "possessed of devils," who, poor souls, were incarcerated in the uppor portion of a tumble-down barn on heaps of straw, and were fed through a hole in the wooden shutters. They proved to be epileptics whose treatment had probably also induced softening of the brain. They were harmless enough, so far as one could judge, though they bore an evil reputation amongst their uncomprehending neighbours.

To return to Jajce by the lake is a delightful though rather nerve-racking experience. The roughly-made caiques or skiffs which are used are about as stable as a birch-bark canoe, and in the rapid currents of the river, and even in parts of the lake itself, though managed with skill they gyrate wildly at times and rock with an awe-inspiring motion as the miniature whirlpools seize hold of them. But notwithstanding many apparently narrow " shaves " we reached our headquarters at Jajce in safety.

To describe Travnik, Zenica, Doboj, Bosnia Brod, or the fine carriage drive or walk from Jajce to Banjaluka there is no space in the present article. And after all these towns and villages do not differ very materially from those we have already briefly dealt with. The colour of the East is there, clinging to the skirts of the West ; civilization conflicting with mediævalism ; eastern customs and ideas slowly but surely yielding place to western.

Full of varied interest, and nowadays brought within comparatively easy reach, Herzegovina and Bosnia should attract many tourists who are tired of the beaten tracks, and are prepared in a measure to " rough it " in pursuit of the unusual which is offered them by the Herzegovinian and Bosnian State Railways, and by the excellent main roads which the rule of Austria has initiated and carried out.

Modes of Asiatic Travel.

By THE EARL OF RONALDSHAY, M.P.

Many years ago, before the stage coach had given place to the steam engine, or the post chaise to the motor-car, the adventurous spirits of Europe who were enticed from their ease by alluring tales of the kingdoms and the marvels of the East were struck by the contrast between the modes of travel which they found themselves obliged to adopt, and those to which they were accustomed in their own country. "A man cannot travel in Asia as they do in Europe," wrote Tavernier, a notable traveller of the seventeenth century; "nor at the same hours, nor with the same ease. The best inns," he went on to say, "are the tents which you carry along with you, and your hosts are your servants which get ready those victuals which you have bought in good towns."

It is true that great changes have taken place since Tavernier gave to the world a record of his wanderings. Asia, as well as Europe, has benefited by the inventions of Stevenson and Watt. In many parts of Asia the railway is to-day as familiar an object in the landscape as it is in Europe. India, thanks to the enterprise of her English rulers, has over thirty thousand miles of iron way; Japan can boast of a total of more than five thousand miles, and China of two thousand miles—a figure which is being rapidly increased; while from the eastern flank of Europe two great iron arms have been thrust out into the vast rolling expanses of Northern and Central Asia; the one, the great Siberian Railway, a long narrow ribbon of steel trailing across six thousand miles of Asiatic soil; the other, the Trans-Caspian line, a rod of iron forging its way up to the very gates of Bokhara and Samarkand, to lose itself finally in the unmeasured wastes of Turkestan.

Yet the chief charm of eastern travel lies not in its immense railways, touched with romance though some of these may be, but in the very contrast which it still provides, for those who seek it, to the rigid uniformity and mechanical precision of life and locomotion at home. "A country that possesses no railway is," as Lord Curzon has remarked, "*ipso facto*, the possessor of a great charm," and there are in Asia immense tracts whose pristine quietude is still unbroken by the raucous screech of the railway engine. It is with these regions that I am now concerned—Mesopotamia and Chaldea, Persia and Baluchistan, the huge block of the Himalayas which lies between Chilas and Tibet, Turkestan and Southern Siberia, and the lovely highlands of South-west China—of all of which I can speak with that appreciation which personal

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A Russian Tarantass.

experience alone can give. And it is as a traveller in the narrowest sense of the word, who is prepared to take as his text and to amplify the sage dictum of Tavernier: "A man cannot travel in Asia as they do in Europe," that I now propose to write.

Among the peoples in whose philosophy the railway engineer is still a thing undreamed of, one's mode of travel is mainly determined by the physical character of the country. The vast level lands of Asia, which alternately awe and fascinate the traveller by reason of the very immensity of their space, lend themselves to a variety of transport. The pack-pony, mule, donkey, and camel, are all familiar figures in my memory of many months of daily marching; the latter on the shimmering plains of Baluchistan and the sun-scorched plateau of eastern Persia; the former in Mesopotamia, Western Persia, and many mountainous lands as well. In yet other lowlands the science of travel has reached a further stage of evolution, namely, the wheeled stage. Wheeled transport is represented by the "araba" of Turkey, the "tarantass" of Russia, the "tonga" of Northern India, and the cart and wheelbarrow of China.

In really mountainous regions, human transport is the almost universal agency of progress. Where ice and snow, or mountain peak and precipice, defy the lower animals, man himself steps in. In certain mountainous regions, it is true, animals are met with which compete successfully with man, such as the domesticated yak of Tibet, which flourishes at giddy altitudes and travels safely over the rugged and inhospitable highlands of that strange and dreary country; and I have occasionally come across a sturdy breed of sheep employed by nomad folk to carry their bags of grain. These, however, provide the exceptions to the rule, and in such regions human transport may be said to be the basis of man's mobility. There remains one other kind of country to be mentioned, namely, that which is freely and conveniently intersected by lakes and rivers. Some parts of India come under this category, such as Lower Bengal, where a well-to-do man will often be found keeping his boat as elsewhere he would keep his cart; but China is the land, *par excellence*, of water transport, its immense rivers providing live arteries of communication between its innermost provinces and the sea.

Let me deal with these manifold means of locomotion in turn, prefacing my remarks with a necessary caution as to the meaning of the word *road* as used throughout this article. The reader must divest his mind of all preconceived ideas as to the meaning of the word. Perhaps the nearest approach to a general definition of an Asiatic road will be found in a modification of Euclid's definition of a straight line: "That which lies *un*evenly between its extreme points." For want of any other term one is unfortunately compelled to apply the word to any

line of country over which one travels in passing from one point to another. Under these circumstances, the road may or may not be distinguishable from the surrounding country, and all that can be postulated for it with any certainty is that it will not have a macadamised surface. When the road is distinguishable from the surrounding country, it has usually become so by reason of its being, by tradition, the shortest distance between two particular points—between two villages, for instance. These remarks do not, of course, apply to foreign-made roads such as the post-roads of Northern India, but only to the indigenous article.

First, then, a few words on the subject of wheeled transport. The araba, already mentioned, is a more or less ordinary cart with hooped covering, resembling a light covered dray, and calls for no particular description. It provides a useful, if somewhat tedious, means of locomotion in Asia Minor. The tonga, a low, springless two-wheeled cart, of Indian design, has been adapted to modern requirements in Northern India. It is in use on the post-roads, and conveys mails and passengers —to take a single example of its usefulness—from India to Kashmir. Relays of ponies are found at intervals of four or five miles, and so effectively does this system work that one experiences no difficulty in covering as much as a hundred miles between dawn and dark.

The vehicle, however, with which I personally am best acquainted is the Russian tarantass. It, too, is without springs—that, indeed, appears to be an unfailing characteristic of every form of eastern carriage—and it has the additional peculiarity of having no seats. On one occasion I drove two thousand five hundred miles in a tarantass across the limitless wastes of Central Siberia and Turkestan. The Russian has laid himself out to absorb these countries, and has dotted lines of solitary little post-houses across them at intervals of ten to twenty miles, to mark the lines of his advance. At each of these one pays the post-master for grease for the axles of one's wheels, which otherwise catch fire, and one also pays him for a relay of ponies and a driver to take one the next stage. Often there are no ponies to be had, and then ensues a weary wait until transport can be obtained once more. So much time did I find wasted waiting at these dreary post-huts that I soon took to making my tarantass my home, driving day and night as long as horses were available; but even so—driving day and night—it took me on one occasion a full thirteen days to cover a distance of little more than eight hundred miles. The horses are harnessed three abreast in the fashion known as the "troïka," and the charge varies from a halfpenny to a penny per horse per mile. The country traversed is for the most part flat and wholly unlovely, and is known as steppe, and the sole physical obstacle to monotonous and uninterrupted progress is to be found in the occasional presence of a river. These are crossed by means of ferries or

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A Peking Cart.

bridges. Being in Asia, both methods are apt to prove prolific of trouble and delay. I was once kept for the whole day on the bank of a river because the ferry would not work, and on another occasion had to assist in rebuilding a bridge, which had been partially washed away, before it was possible to proceed. My two tarantass had cost me ten pounds to purchase at the beginning of my journey, and I sold them for the price of a night's lodging at a primitive hotel at the end, a mutually satisfactory transaction by which I was relieved of an incubus and the innkeeper provided with a lavish supply of scrap iron and firewood.

Two other forms of wheeled conveyance only shall receive mention, namely, the cart and wheel-barrow of China. Each in its way is, I imagine, the apotheosis of discomfort, though as I have not made personal trial of the latter, I can only predicate this of the former. In shape the body of the Peking cart resembles a lady's travelling trunk with one end knocked out of it. This is hung between two massive iron-studded wheels of wood, which the traveller soon suspects would fail to satisfy Euclid's definition of a circle. A mule is harnessed between the shafts, and when one has crawled into the box through the aperture, the driver places himself upon the only sitting room still available, namely, the near end of the shafts, thereby substituting his own broad back for the missing end of the trunk. Hot, cramped, and in semi-darkness, the view blocked out by the faded blue of the cotton-clad body of the driver, one is now in the most perfect surroundings for appreciating the engineering skill which has been expended upon the average Chinese road.

In those parts of China to which the Peking cart has not yet penetrated, the wheel-barrow affords an agreeable substitute. In the province of Ssu-ch'uan, I perceived the leisured classes who do not aspire to the dignity of a chair (to be mentioned hereafter) being trundled along in these vehicles, the rate of hire being two *cash* per *li*, roughly two-thirds of a farthing per mile. Even in the coast towns, where many forms of conveyance are available, the wheel-barrow finds favour among the lower classes, and in Shanghai I found factory hands wheeled daily to the scene of their labours on barrows of exaggerated size, six men to a barrow, at a contract price of sixty cents (say 1s. 2½d.) per man per month. This, however, is a form of transport to which the traveller from Europe will seldom, if ever, resort, and I must return to a consideration of the various forms of animal transport which he will ordinarily employ.

The pack-pony or mule is undoubtedly the animal most widely used by the traveller in Asia. In Persia there is a system of post-riding in vogue, relays of riding horses being found at the post-houses in place of the harness horses of the post-roads of other lands. This system is known as "chapar," and great distances can be covered by the hardy traveller who may continue riding as long as he can induce his aching limbs to

cling to the saddle. A single horse is supplied for his baggage, which has consequently to be cut down to a minimum, and in Persia, as in other countries, the traveller who has leisure will probably buy or hire his own string of pack-ponies and travel at caravan pace.

It cannot be said that the lot of the average pack-pony is a happy one. He is, as a rule, an overworked, underfed, long-suffering beast, who looks out on the world with a stolid fatalism that is characteristic of most things eastern. The methods of loading him vary in accordance with immemorial custom. Here is an example as I daily witnessed the operation performed on the western confines of Mongolia. One man holds the pony's head, others place the baggage in position on either side, two others again throw a rope all round the pony and baggage, place one foot each delicately against the pony's flank, and then heave until they consider the baggage secure, or until the pony strikes. When this happens, as it not infrequently does, you look placidly on while your most precious belongings are scattered to the four winds of Heaven, and a perspiring crowd of men hurl themselves on to the unfortunate animal. In addition to its load, the pony usually finds itself burdened during some part at least of the day's march with the person of its driver. Pack-ponies usually, though not always, walk in single file, the leading animal, selected for its strength and sagacity, having frequently a bell hung round its neck.

Rivers have of course to be negotiated with pack-ponies just as they have with wheeled conveyances. On recognised caravan roads one may find a ferry or bridge, but where one is not travelling by any particular road, one does the best one can, which not infrequently means swimming. I remember crossing a river in Chinese Turkestan in company with some Kirgiz herdsmen. They were unfortunate enough to lose one of their ponies in the current, the animal being swept under and drowned. The misfortune, it seemed, sat lightly upon them. The body was fished ashore, a fire was lighted, and within a very short time they were making a hearty meal off the sodden carcase. The Kirgiz, it may be added, raise large herds of horses, regard horseflesh as the most savoury of meats, and drink largely of mare's milk.

After the pony the camel. He exists in two varieties—the riding-camel and the baggage-camel. Neither of them, so far as my own experience goes, is calculated to excite either one's enthusiasm or one's admiration. The riding-camel of Baluchistan is a delicate animal requiring careful treatment, and the baggage-camel is possessed of a sort of supercilious dignity which seems to declare that he is fully conscious of the honour he is doing you by carrying your goods along at the rate of a mile and a half an hour. "His intelligence," as a well-known Indian writer has remarked, "is not of a high order, and if left to himself it is marvellous if he does not do the wrong thing."

I have travelled with camels the whole length of Baluchistan, where the sun sinks daily behind an expanse as flat and as featureless as that of the ocean, and have found them tolerably satisfactory. Not so when I have employed them in crossing the rugged ranges of mountains which run in great parallel ridges from east to west across Eastern Persia. Here I found the camel chiefly a cause to blaspheme, and I have pondered thoughtfully upon the world of wisdom contained in a short account of him by Sir Francis Galton in a little volume entitled *The Art of Travel.* "Camels are only fit for a few countries and require practised attendants; thorns and rocks lame them, hills sadly impede them, and a wet slippery soil entirely stops them." It was not until I had spent the best part of a winter in travelling twelve hundred miles in daily companionship with camels that I learnt to appraise at their true value certain lines of Rudyard Kipling:—

> "What makes the soldier's 'eart to penk, what makes 'im to perspire?
> It isn't standing up to charge, nor lyin' down to fire.
> But it's everlastin' waitin' on a everlastin' road
> For the commissariat camel an' 'is commissariat load.
> The 'orse 'e knows above a bit, the bullock's not a fool,
> The elephant's a gentleman, the battery mule's a mule,
> But the commissariat cam-u-el, when all is said 'an done,
> 'Es a devil an' a ostridge an' a orphan-child in one."

The Tibetan yak, of which I have spoken, is a shaggy animal known to zoologists under the title of *Bos Grunniens*, and vies with the camel in the leisureliness of its movements. Its chief recommendation is to be found in the fact that it is quite at home at great altitudes, and travels safely over ground which would prove too difficult for horses or mules. I employed the yak at one time for a period of three months, during which I was never at a less altitude than twelve thousand feet, usually at a height exceeding fourteen thousand feet, and not infrequently at altitudes varying from sixteen thousand to nineteen thousand feet—some two thousand or three thousand feet, that is to say, above the summit of Mont Blanc.

The value of human transport varies in different countries. In those parts of the Himalayas with which I am personally acquainted, the load carried averages fifty pounds, and the pay for a march of from twelve to twenty miles is fourpence. The men are necessarily splendid mountaineers and look upon a bridge of a single strand of rope with rope hand-rails, which sways giddily, high above a foaming torrent, and sags disconcertingly as one advances along it, as the highest expression of the bridge-builder's art. But it is in China that man as a beast of burden is at his best. Throughout the land those who can afford it or whose dignity demands it travel in sedan chairs carried by two, three, or four bearers.

A degree lower than the chair-bearers are the ordinary porters whose powers of endurance are truly remarkable. In Ssu-ch'uan, in Western China, my own bearers carried loads of a hundred and thirty-three pounds apiece, and marched from twenty to thirty miles a day at rates of pay approximating tenpence per man per day; and instances have been recorded by well-known travellers of porters in this province carrying the almost inconceivable weight of four hundred pounds during daily marches of ten or twelve miles of mountain track.

It now remains, before concluding, to say a word upon the possibilities of water transport. I have pleasant recollections of seven days and seven nights spent upon one occasion in floating peacefully down the broad bosom of the Tigris River on a raft of skins and laths put together at Mosul and taken to pieces again and sold retail in Baghdad. A less peaceful, though infinitely more exciting time, was that spent on one of the Himalayan rivers upon a flimsy construction known locally as a "zuck." The "zuck" consisted of a number of goat-skins blown up by mouth and tied roughly together into an exceedingly fragile whole by the unsophisticated natives of Balistan, but I must leave the reader to picture for himself the pleasurable excitement of being propelled for thirty miles by the force of the current of a Himalayan river in flood on craft of this kind.

In China the rivers provide a field for the activities of an immense boating population. Argosies of white-sailed junks ply to and fro upon the thousands of miles of her navigable waterways. For over a thousand miles the Yang-tsze is navigated by steamers of considerable size and speed, and beyond, where rapid and gorge render the river unsuitable to steamers, by native junks. A journey over the four or five hundred miles between Ichang and Ch'ung-k'ing amid the magic scenery of the towering gorges where each fresh turn in the river's winding course opens up a new vista of natural splendour, is a thing not easily forgotten. And if at the end of it the voyager finds that, in common with every other phase of Eastern travel, it demands that he discount the value of time, yet he will be compelled to admit that in one respect a journey by Chinese junk is unique in that it alone of all the manifold methods of Eastern travel calls for no expenditure of tissue. For myself, I confess to deriving a greater degree of satisfaction from the contemplation of a day's march done, and from that peculiar joy which is the reward of those "Who scorn delights and live laborious days."

[By permission of Messrs. Wm. Blackwood & Sons.

The Pack-Pony in Asia.

"An overworked, underfed, long-suffering beast" (p. 352)

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A Visit to the Cave-Dwellers of Southern Tunis.

By W. HILTON-SIMPSON, F.R.G.S.

In the south of the Regency of Tunis, far from the haunts of the ordinary tourist, on the fringe of the vast wilderness of the Sahara, there dwells a people of whose very existence nine-tenths of the annual visitors to the French North African Protectorate are probably unaware, and yet whose life presents an interest superior even to that of the Beduin of the desert.

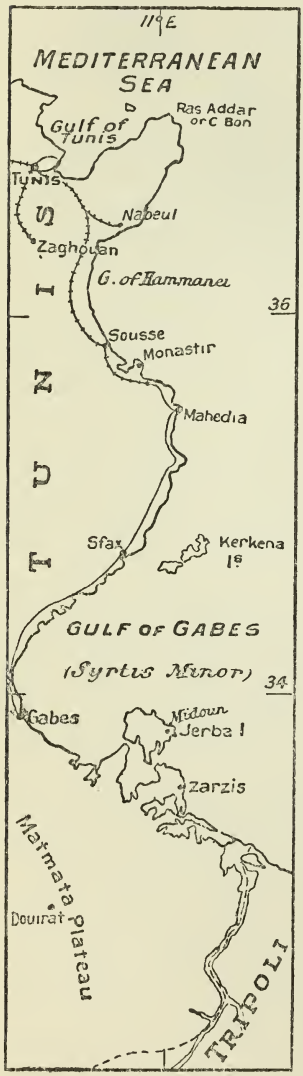
These people are the cave-dwelling Berbers of the Matmata Hills. That their quaint subterranean villages have been but little visited by travellers other than those in the service of the Bey or the French Government, and an occasional scientific explorer, is scarcely to be wondered at, for there is but one base from which a journey into their country can be made, and to reach it necessitates a three days' voyage in a coasting steamer, or a land journey involving several changes in the means of transport: train, automobile, and "diligence" having to be successively employed.

This starting point, from which the traveller who would visit the Matmata Hills must proceed, is Gabes, situated at the head of the Mediterranean gulf of that name. It happened that, at the end of 1905, I was delayed for some time at Gabes owing to a difficulty in connection with my passports for a journey into the Sahara, and while awaiting the arrival of official papers from Tunis I found an opportunity to visit the troglodyte village of Hadeij.

Gabes is scarcely the place in which one would elect to spend more than a few days. In a way the place is beautiful. It is not only a seaport but an oasis in the Sahara. At this point the great desert comes into contact with the Mediterranean. Viewed from the sea the scene is most picturesque. The flat shore, the barren country, the low hills to the north-west, the higher peaks of the Matmata range to the south, the great mass of date palms surrounding the cluster of villages in the foreground which forms the native quarter of Gabes, combine to make up a picture typical of the Tunisian Sahara.

The Wad Gabes—a little stream that flows by the walls of the native villages under the shadow of the palms—adds considerably to the beauty of the oasis, and the mouth of it forms the only existing harbour. Owing to the shallows, passengers and freight have to be brought from the

steamer to the mouth of the Wad in boats and lateen-sailed lighters. A harbour, however, may possibly be made at Gabes in the not far distant future, for it has long been the desire of the Government to attract to Gabes some of the trans-Saharan trade from the markets of Ghadames, Ghat, and other desert trade centres, which at present passes through Tripoli. To this end a reduction of the Customs tariff is allowed upon certain articles intended for the Sahara, and this "bait" seems at last to have been taken, for since my stay in Gabes at least two caravans have arrived from Timbuktu, travelling *via* In-Salah, and their merchandise has found an immediate sale.



The native quarter of Gabes consists of two or three villages—Menzel, Jara, and Shenini—rather than of one compact town. This is considered by some authorities to be due to the fact that the Berber tribes from the southern hills came in large numbers to settle in and around Gabes to the exclusion of the town-dwelling Moor, and the Berber inclination seems to be to reside in houses built at intervals or in small groups, and thus to avoid the overcrowding of a town.

Though Gabes is built on, or near, the site of the ancient Roman town of Tacape, there exist few traces of a former civilization. The ruins of some cisterns and an occasional pillar, found incongruously supporting a wall of mud-bricks, are all that is left to recall the former greatness of the place. The European quarter consists of two or three straight streets leading from the shore towards the market and the native villages. As a residence for Europeans the town came into existence after the French declared Tunis to be their Protectorate in 1882, simply owing to the garrison. Even nowadays, with the exception of a few halfa grass merchants, the great majority of the European population exists solely to supply the wants of the troops.

In a very short time I had seen all that I could find to look at in Gabes, and, my papers not having come from Tunis, I asked the French officer in charge of the native administration to allow me to leave the town for

[W. Hilton-Simpson, Phot.

Crossing the "Wad" near Hadeij.

[W. Hilton-Simpson, Phot.

Mouth of a Cave, Hadeij.

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a few days sojourn in the Matmata Hills. This he agreed to do, promising to recall me should my passports arrive in my absence, and accordingly I at once proceeded to decide upon my route, and to hire the necessary transport. Acting on the advice of several native acquaintances I determined to visit Hadeij, that being one of the higher and more remote villages. I had already engaged two men to accompany me upon my Sahara journey, so all I had to do was to hire a riding mule and a kerrata or two-wheeled mule cart, to convey my baggage. Upon this latter we placed my small tent, bedding, and a few stores, and about eleven o'clock one glorious morning we took our departure for Borj Tual, a caravanserai at the foot of the hills, where we were to pass the night preparatory to making the steep ascent to the village. The Matmata Hills form a north-western spur of a coastal range of mountains extending, roughly speaking, from the great shotts, or salt pans, of southern Tunis to the neighbourhood of Khoms, on the coast of Tripoli. This range includes the Matmata, Nefusa, and Gharian Hills, the homes of several troglodyte tribes of Berber origin. North of Hadeij, which is situated some five and twenty miles almost due south of Gabes, the hills do not rise to any considerable height, but a little to the south of Hadeij some of the peaks attain to an altitude of about two thousand seven hundred feet above sea level.

On leaving the palm groves of Gabes and its suburb of Ras el Wad, we entered a barren stony plain, much intersected by the dry beds of streams which fill rapidly when rain has fallen on the hills. After covering about eight miles of a well-defined, though uneven, track we halted for refreshment at the tiny village and oasis of El Hamdu. The place consists merely of a few stone huts, a pool, some date gardens, and a kuba, or domed edifice raised over the tomb of a native saint, while on the occasion of my visit the scene was enlivened by the presence of one or two tents, with their full complement of noisy yellow curs, which heralded our approach in a manner by no means in keeping with the traditional hospitality of their nomad masters. El Hamdu appeared to contain nothing of interest, but its little oasis in the midst of the barren plain, the kuba gleaming white in the sunshine, with the deep blue of the Mediterranean in the eastern background, composed a landscape which might well tempt the brush of a wandering artist.

Our route towards the hills lay through the same desolate country until we approached to within a few miles of Borj Tual, when the plain became studded with bushes and even showed signs of being roughly cultivated by the inhabitants of some tents. We did not arrive at our halting place until quite late in the evening; in fact the last hour or two of our march we accomplished by the light of a full moon, which gave to the landscape a weird, almost unreal, effect, which was none the less

beautiful if it was a trifle uncanny. The great black masses of the mountains, the silvery light over the plain, the faint glimmer of a camp fire, even the distant chant of an Arab returning to his tent, appealed to the senses in that strange way so familiar to those who have travelled by night in the Sahara.

The Borj at the foot of the hills was just a small specimen of those defensible caravanserais that the French are erecting upon most of the principal caravan routes in the desert. Some of these buildings possess as many as ten or a dozen rooms, with shelter for a number of horses, but that at which we halted on the way to Hadeij contained two rooms only, strongly built of stone and cement, and a yard for the beasts. The rain-water tanks which supplied the Borj were well filled, so we were able to settle down in comparative comfort to rest before our early start on the morrow.

Just as I was about to turn in, one of the Arabs who accompanied me came in to say that he thought he could make out a man in a white burnous on the hillside, and he was rather uneasy as to his probable intentions with regard to our mules. The other Arab and I both went to look, but, owing to the fact that the figure remained absolutely motionless for some time, we told our mule-driver that we were sure the supposed man was, in reality, a rock, and that his fears were groundless. "Oh, well," replied the fellow, "I'll just fire a shot at him to make sure!" Without rating his powers as a marksman too highly, I considered that it might be safer if we went to examine the figure, which turned out to be a rock, as we thought. Arabs, especially those whose life is mostly spent in an oasis, and for that matter Europeans too, are very apt to see things which do not exist when travelling by night in the wilderness, a fact which accounts for many of the ghost stories of the Sahara.

The track from Borj Tual to Hadeij was far more trying for the beasts than that which we had traversed on the previous day, for the ascent of the hills began very shortly after leaving the caravanserai. The "going" was terribly hard for the luckless mule which had to draw the kerrata. The road rises over a very rough and broken country studded with thick thorny bushes, and occasional olives or date palms, until the steep descent into the bed of the Wad, a mile or so from Hadeij. The crossing of this watercourse is extremely difficult for wheeled traffic at all times, and can only be attempted when there is little or no water in the valley. After any considerable amount of rain has fallen on the heights the dry bed of the Wad (it is quite a deep valley some three hundred yards wide) becomes suddenly filled to overflowing with a mighty river carrying all before it in its irresistible rush towards the sea. A few months before my visit to the mountains such a flood had occurred, and had swept away an encampment imprudently pitched too low upon

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[W. Hilton-Simpson, Phot.

The Jew and his Family.

[W. Hilton-Simpson, Phot.

Inhabitants of Hadeij.

the bank of the Wad, several of the bodies being carried to within quite a short distance of the sea shore, where they were discovered lodged on some boulders.

The view after we had bumped over the great stones in the valley and climbed the steep slope on the farther side, was, in its own particular style, a splendid one. To the north-east lay the slopes of the foothills which we had rounded by a more westerly pass, dotted here and there with slender date palms, while the number of more stunted and greener trees scattered over the hillside showed us that the olive is cultivated more or less successfully in the mountains. To the south the peaks rose higher towards the village of Matmata, their barren and rugged summits being in many instances capped with cloud. The countryside presented a scene of considerable activity, for a shower had fallen in the night, and the inhabitants were busily employed turning it to the best account that their primitive agricultural implements would allow.

On being told by the mule-driver that we were nearing our destination, I hurried on with my interpreter to find the village of which I had heard so much. Suddenly, when traversing some undulating ground of a sandstone-like character, we were attacked by a number of curs, which appeared as if by magic from some invisible hiding-place, and almost at the same time an old man, who also seemed to spring from "nowhere," came up to beat off the dogs and to enquire our business. Then we realised that we had reached Hadeij. Were it not for the dogs one might easily pass through the village without becoming aware of its existence, so cunningly concealed are the entrances to most of the underground dwellings.

We enquired of the old native if he could direct us to the Khalifa of the place, or someone in authority who would receive us and advise us as to where to pitch our camp—on entering any small village in the Sahara one always asks for the sheikh—but we were informed that all the principal residents of Hadeij were attending to the work of cultivation, and that the Khalifa was at Matmata ; there was, however, a Jewish trader who would do what he could for us. This worthy soon arrived, and conducted us to a cleft in a hillock in which his two caves were situated, and at the foot of which I pitched my tent. That done, I took a stroll through the village, accompanied by my interpreter and the Jew.

The locality is particularly well adapted to form the site of a troglodyte settlement. There are numbers of mounds, in the steep sides of which the caves are hewn, and the narrow paths between the hillocks provide a natural approach to the doors of the subterranean houses. A very common form of cave dwelling at Hadeij is that composed of a shaft, some twenty feet or more square, and about twenty feet deep, sunk into the summit of a mound, from which the various apartments open out, the shaft being used as a courtyard. The entrance to this kind

of house is often extremely difficult to find, being approached by some narrow and winding alley which appears to be only the dry course of the water which runs from the hillocks in the heavy rains.

The caves of my Jewish host, however, were simply apartments hewn in the side of a mound, the interior of his "shop" being whitewashed. Although I spent a good deal of my time, and passed one night, in the trading part of his establishment, the Jew never invited me to enter his private cave; the reason being, I suppose, that it consisted of one room only, and there was no retiring place for his wife and daughters, only one of whom would allow herself to be seen by a European. This shyness is more marked in Hadeij than among any other Berber peoples whom I have met. On one occasion a girl was drawing water from a cistern, and hearing our footsteps as we approached glanced up to greet us, but on perceiving me she gave a shriek and fled, covering her face with her hands. I was informed that I was probably the first European she had seen, as Hadeij receives but few visitors.

The people of the hills are related to the Kabyles of Algeria, the Riffs of Morocco, and—rather more distantly—to the Tuareg tribes of the central Sahara. Their history shows that they possess the same courage and love of freedom as do their better-known cousins in the Algerian mountains, and many of their customs are identical. They embraced the religion of their conquerors when the great Islamic flood spread over Northern Africa, but previous to the Arab conquest (about 700 A.D.) there is some ground for belief that the inhabitants of these mountains held the Christian faith. Some tattooing in the form of a cross and the existence of some ruined shrines in various parts of the range would seem to support this theory.

On the whole, I was agreeably surprised by the personal appearance and physique of the troglodytes. They were far cleaner than I had anticipated, and the fact that they lived underground seemed by no means to prejudice their health. The cultivation of corn—to a limited extent, owing to the dryness of the climate—and of the olive and date palm constitutes the principal occupation of the inhabitants of Hadeij, though the produce of the country appears to amount to little more than is needed for the sustenance of the people. The camel-drawn plough is quite a feature of the district, and it is one of the most primitive ploughs I have seen, consisting merely of a straight piece of wood to one end of which is attached the small iron "share," while to the other end the camel is harnessed by means of cords of plaited grass. From the end nearest to the "share" a small wooden handle rises at nearly right angles to the ground. The whole plough weighs no more than about seven pounds, and the furrow it makes is, of course, very shallow and irregular. It seems, however, to answer its purpose in the light soil in which it is

used. One camel is usually employed to draw the plough, and one man guides the implement and cheers on his beast with the customary harsh cries and flow of forcible expressions relating to the camel's ancestry. At Hadeij a camel was also used to work a primitive mill belonging to my Jewish host, who further owned an olive press, both mill and press being situated in caves.

The weather during my stay in the Matmata Hills was by no means pleasant, for a persistent fall of drizzling rain rendered the taking of photographs almost an impossibility, while the water which flowed from the hillocks near my tent caused us great inconvenience at night, so that I gladly accepted the invitation of the Jew to occupy his cave-shop during the last night of my stay in the village. This cave was small and rather stuffy, so on turning in I placed my blankets as near to the door as possible, leaving the farther end of the cave to my men. Our host, however, insisted on providing me with three totally unnecessary guards, who were directed to sleep between me and the door, and who indulged all through the night in a snoring contest with my servants in the back of the cave. Despite the noise created by my companions I might have slept in comparative comfort but for the perambulations of some chickens, of whose presence I only became aware when roused from slumber by the pressure of a clawed and scaly foot upon my forehead. Chickens (and their invariable companions) are nearly always to be found in the caves ; therefore let not the traveller forget his tin of Keating's powder !

It was not until the morning of my departure for Gabes that the weather cleared sufficiently to enable me to take a few photographs of the neighbourhood and the people, several of whom consented to attire themselves in their best for my benefit ; and very smart they were. They wore the usual baggy trousers, brightly-coloured waistcoats, and finely woven silk haik, or long shawl, which constitutes the dress of most Tunisians upon fête days. The everyday garment of the troglodytes is the wasrah, under which a cotton shirt and trousers are usually worn, save by the poorest classes. The wasrah is a straight strip of woollen or camel's hair material, about fourteen or fifteen feet long and four feet six inches wide, with a fringe at each end. This garment is slung over the left shoulder ; the fringe of the end thus placed behind the back is drawn under the right arm and tied to a bunch of the stuff in front ; and the remaining length is then wound around the body and over the head, the free end being thrown over the left shoulder. The European usually finds the wasrah extremely difficult to wear owing to its tendency to slip off, but the Tunisians can move most freely, and even ride, without disarranging its folds. As a large travelling rug or a camp blanket the wasrah is most useful to the traveller, and it can be procured anywhere in Tunis.

During my stay at Hadeij I became acquainted with quite a number of the natives, and I was on all sides welcomed as an honoured guest, so that it was with some reluctance that I was obliged to leave the hills, after a brief stay of but four or five days, to commence my wanderings in the great desert. To the traveller who delights in fresh scenes and novel surroundings the troglodyte villages must strongly appeal, and there would doubtless be found in them many attractions for the scientific traveller who can find opportunity to pursue his researches in the odd nooks and corners of the world. The hills can be reached in quite a short time from London ; the climate, if not rainless, is healthy ; the natives are most friendly ; and the journey from Gabes presents no serious difficulties.

The traveller should read Brunn's *Cave Dwellers of Southern Tunisia* before visiting the troglodytes, and, when in Tunis city he would do well to call at the Bureau Spatz, a shipping agency at which he would be able to obtain full information as to routes and hotel accommodation at Gabes and great assistance in the selection of his servants. A representative of the Bureau frequently undertakes sporting trips in Southern Tunis, and consequently the agency is in touch with a number of natives in Gabes. In this connection I should, perhaps, add that the Matmata Hills have little to offer to the man who travels solely for sport.

A Night Ride in the Andes.

By C. REGINALD ENOCK, F.R.G.S.

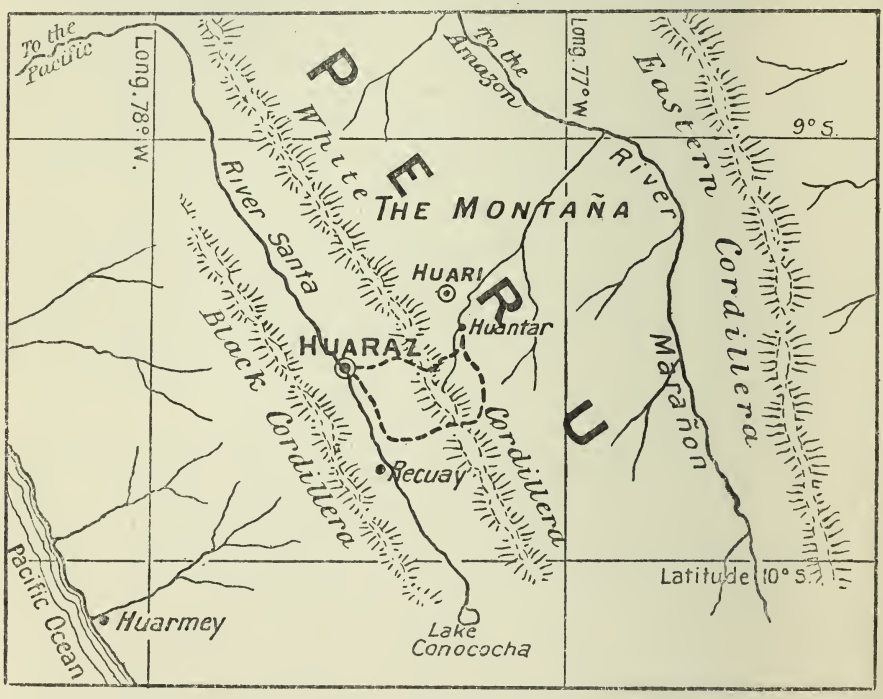
Towards the close of 1903 I set out on a somewhat perilous expedition to cross the snowy range of the Peruvian Andes, in the Department of Ancash, Peru, over a portion of the Cordillera which had never been traversed by a white man. The object of the journey was to determine the practicability of making a mule-road across the mountains in that particular place, which would shorten the distance between the important town of Huaraz, upon the Pacific slope of the Andes, and the region of the Upper Marañon—part of the Montaña of Peru, upon the Amazon watershed.

It is not my intention in this article to describe the passage over the perpetual snow cap, which I successfully accomplished with my party of Peruvians and Peruvian Indians. Suffice it to say that the passage was difficult and dangerous in the extreme, owing to the considerable elevation which was attained (more than sixteen thousand feet above sea level), the blinding snowstorms, and the crevasses in the ice cap covered with a treacherous coating of snow. It is with the return journey by another route that I propose to deal here.

The region into which I penetrated is an interesting one, though not easy of access. On every hand the abandoned ruins of ancient peoples —Incas, Quichuas, and others—are encountered; and the natural resources, especially in copper, gold, coal, and other mineral deposits, are considerable. Having completed my work on that occasion, and being desirous of returning with all speed to Huaraz, I requested the Gobernador, the petty official of government of the Indian village I had reached, who was also my host, to obtain horses or mules for the return journey. This I proposed to accomplish by making a considerable detour, crossing the great snowy range of the main Cordillera of the Andes by means of a mule-road which led over a high pass and which formed the principal means of communication in that part of Peru between the Amazonian and Pacific Slopes. The term "road," it may be remarked in passing, is not to be taken in the sense of an English road; an explanation which will not be necessary to any traveller accustomed to the perilous tracks across the Andes.

The Gobernador was exceedingly anxious to oblige his guest, notwithstanding his regret, as he put it, at losing "a distinguished traveller from the outside world, who had rendered such a service to the region";

for the possibilities of this proposed mule-road had long been dreamed of, but never attempted "until," as the Alcalde of the village, another petty official, said, "the route had been explored by a son of energetic and progressive Albion." I only required mounts for myself and the three Peruvians who were to accompany me to Huaraz. The Cholo-Indians would go on foot—their usual mode of journeying. But though the Gobernador and the Alcalde both undertook to supply my needs, it is one thing to promise horses or mules in the Peruvian interior, and quite another to obtain them. Not that they do not exist, but their



Indian or Mestizo owners are exceedingly loath to lend or hire them. They have too often had them commandeered, or "borrowed," never to be seen again, in bygone revolutionary times. Two days afterwards, however, four sorry brutes—one less sorry than the others, and intended for the Englishman and leader of the expedition—were brought in by the strenuous efforts of the authorities. "Now, señor," these worthies, the Gobernador and the Alcalde, said, "you will be able to make a start early to-morrow."

Possibly I showed in my demeanour no great signs of enthusiasm

Valley of Huaraz.

[C. Reginald Enock, Phot.

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during my inspection of the decrepit horses. Long experience in Spanish-America had shown me what the conditions of travel in those countries generally involved. "Tell me, Gobernador," I said, possibly with a note of sarcasm, "do you really think that these animals will cross the Cordillera?" He replied in such a way as confirmed my own doubts, but we agreed that a day's good feeding with plentiful alfalfa might render them more fit; and indeed it is remarkable what a day and night's consumption of fodder will accomplish for the half-starved equine brutes of this region. I decided to make the best of the situation, for it seemed extremely doubtful if other animals would be forthcoming; so the four horses settled down that night to the best feed of their lives. But these particular animals had evidently been fated not to pass the Cordillera in my service, for my Indian servant woke me early on the following morning with the information that the horses had been taken away. I arose and went outside. The Gobernador was angrily upbraiding the Indian in whose charge the animals had been left for the night, and seizing at the moment a stout stick he laid it soundly across the shoulders of the unfortunate Cholo. "He slept, the rascal," cried the Gobernador, as I interposed, "and the owner of the horses has carried them off again!"

Personally I did not consider the loss irremediable, and I said so. The Gobernador promised other and better beasts for the "mañana"—the morrow. "In any case, it is better to wait a day or so, señor," he said, indicating the distant Cordillera and the murky firmament which overhung it some leagues away. I cast my eyes towards the beautiful snow-covered Andine Cordillera, over which I had so direfully struggled a few days before, and notwithstanding the rosy tinge of the rising sun upon the gleaming ice-bound peaks, it was evident that a severe snowstorm was raging there. However, to cut the story short, two horses and two mules were obtained on the following day, and were liberally treated to alfalfa, in the same way as their predecessors, but were guarded with the utmost vigilance. To tell the truth, the hire of them was in the nature of a forced loan levied by the Gobernador. My offer of pay made little difference to the owners, for often these people will not hire at all.

I disposed everything for an early departure on the morrow, and at six a.m. the horses and mules were brought to the door. The steed destined for myself was large, but of decrepit appearance; those for my three Peruvian assistants were of varying—very varying—characteristics, ranging from a wicked-looking black mule to a small beast more like a rat than a horse. I did, in fact, christen it on the spot "El Raton," and assigned it to the lightest of the horsemen. The wicked-looking mule I reserved for myself; it had stamina, at any rate, and a mule is often better for mountain journeying than a horse. The Gobernador undertook

to have a good lunch put up for the day's journey, and whilst he occupied himself with this important matter I called for the saddles.

Now, in Spanish-America, if horses are necessary means of travel, saddles are not less so. Bitter experience of this nature in such countries, and of the difficulty of obtaining saddles, had caused me long ago to take a solemn oath never to go anywhere without my own. The habit stood me in good stead on this occasion. I had had my saddle brought over the ice cap by a special bearer, and, indeed, I had used the large leather underpart to toboggan down a snow-covered slope. My companions were in a less fortunate position. They had no saddles of their own, and for a time it seemed that none was to be found. At last, having scoured the village at a grievous loss of time, they obtained three articles answering the description, with their corresponding headgear. But, alas, it was now approaching mid-day, and the traveller who ventures over the Andine Cordillera, if he be wise, sets forth at daybreak, for as soon as the sun passes the meridian down come the forces of Nature in hail, snow, wind, and rain, upon the head of the belated horseman. In addition, it was a full twelve hours' ride to Huaraz, even with good beasts.

Nevertheless I knew it was wise to depart while I had the horses, for in the Peruvian Sierra no one knows what a night may bring forth with borrowed steeds! Having partaken of a last copita, or glass of native spirits, pressed upon me by the Gobernador, and having exchanged the usual compliments of despedida, or "good-bye," I gave the order, and mounting we were soon clear of the village and threading our way among the ravines and foothills of the Cordillera.

The impressions of that journey will, I think, remain with me until I make the final departure over this earthly range. The animals ridden by my assistants proved to be slow and poor, and notwithstanding all my objurgation for haste, league after league was passed over at a pace which ill accorded with our desires to reach at least some Indian choza, or hut, before night fell. As for my own mule, he breasted the Cordillera gallantly, and frequently, impatient of the lagging Peruvians, I rode on far ahead, reining in at last upon the summit of a high rocky counterfort, to observe the vast landscape spread out below.

Away to the east the shadow of the Andes was creeping across the country. Range after range of hills, intersected by profound valleys, stretched away towards the horizon, terminating in the limitless Amazonian forests which stretch for thousands of miles beyond the river Marañon. In the opposite direction arose the interminable upward slopes of the Andes, crowned with perpetual snow, rising in culminating points of ethereal-looking snow-clad peaks, bathed by the passing roseate flush of the setting sun. Silent, solitary, majestic, they rose above me, and as I gazed upon them and to the far horizon, something of that feeling

[C. Reginald Enock, Phot.

Views on the High Andes.

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of true communion with Nature which at times visits the traveller in such regions came upon me.

But there was nothing ethereal about the cold snow-and-rain storm which, half-an-hour later, wound with sudden fury from among those perpetual snow-crowned aisles and turrets, and descended upon us as, my companions having rejoined me, we breasted the appalling steeps which form the "road" over this particular Andine pass. Sheltering under the lee of a rock which overhung the precipitous trail, we partook of the Gobernador's lunch, which, unfortunately, proved to be neither very appetising nor very abundant. Privately, however, he had pressed upon me an excellent boiled ham, advising me to reserve it for my own use. I cut off large chunks of it for my companions and myself, and returned the bone to my saddlebags with a crust of bread which remained from my portion of the lunch. In the snowy Andes, upon a night ride, even a ham-bone and a crust might be of service later, for *quien sabe* what time it would be before we should reach human habitation.

For hours we wound and zig-zagged up the insecure path which ascended the slopes. Unceasingly the rain and snow beat upon us, rendering the trail invisible, blotting out the darkening landscape, and soaking my companions—who were unprovided with indiarubber riding capes—to the skin. I fared little better, for such was the fury of the storm that the wind blew up from below, rendering my mackintosh-cape almost useless. However, the traveller who journeys upon the "roof of the world" in winter and at nightfall has only himself to blame for the consequences, and I supported the situation with philosophy. The long boa of vicuña fur which I used for such expeditions wound round my neck and face, shielding me in a measure from the cutting blast, and warded off the wretched soroche, or mountain-sickness, which the cold and rarified air of these high regions sometimes produce.

Hour after hour, league after league, we plodded along in silence, feeling our way up that appalling precipice more by the sagacity of our beasts than by our own eyesight, for night had fallen and there was no light save a faint gleam from the snow. How I longed for the summit and the downward journey on the other side of the Cordillera! Of all methods of riding that of going up steep paths on mule-back is the most fatiguing. The breast-strap of my saddle had been lost or stolen some days before, but long experience on mountain roads teaches the horseman to clutch the mane of his beast with his bridle hand in the steep places, and this prevents the saddle from slipping back. Going downhill, of course, the crupper keeps the saddle from slipping forward, for it is to be recollected that the slope of these trails is often exceedingly steep.

Still the vertical face of the precipice up which the insecure trail was cut

loomed above us, and still hour after hour passed and my eyes, ever hoping to encounter the plateau upon the summit, only saw the interminable zigzags and curves of the trail. Benumbed and weary we kept on, till suddenly casting my eyes upwards I observed a wooden cross silhouetted against the fitful gleam of an occasional moon. No sight could have been more welcome. I knew that the devout Peruvian Indian ever marks the summit of mountain ranges with a cross. "La cumbre!"—the summit—I called to the weary horsemen struggling up the path behind me upon their soroche-stricken and failing animals. Their satisfaction was as great as mine. A little farther on—said one of them who knew the road—was an Indian choza, or shepherd's hut, which might afford us shelter until the storm passed, and the means of making a cup of coffee.

The summit-passes of the Peruvian Andes of this region are of much interest topographically. They form the *divortia aquarum* of the South American continent. The snow and rain which had poured off my riding cape in streams as I ascended, and the rills and streams crossed, were to find their way to the giant Amazon, and so to the Atlantic, three thousand miles away; the rains upon which we were entering now had a destination very far removed, for their flow was towards the Pacific Ocean. At last I drew rein at the foot of the cross. I looked at my watch by the light of a match. It was twelve o'clock—midnight. I looked at my aneroid barometer. It marked fifteen thousand seven hundred feet above the level of the sea—higher than the top of Mont Blanc! All around was the perpetual ice cap whose lower edge I had observed nearly a thousand feet below, and through which the trail was cut in places. The moon came out brilliantly and lighted up that vast white solitary world of snow, flinging strange shadows from the snow-cornices of peaks upon the white facades beneath. Lost in contemplation of the scene, I was interrupted by the voice of one of my assistants. "Señor," he said, "the choza is no longer there," and he indicated a plateau far beneath us where it had formerly stood.

It was true, and even as we gazed disappointedly down, a black shadow obscured the face of the moon, and the pelting rain and sleet and snow once more closed in upon us. There was nothing for it but to continue onwards until daylight with what fortitude could be summoned. My companions sustained their drooping energies with frequent draughts of aguadiente, or native brandy, from the bottle they carried, and I did not disdain a mouthful myself to ward off the effects of the wet and fatigue. Onwards and downwards we journeyed. We had already been for twelve hours in the saddle, without putting foot to earth, and we could not hope to arrive at Huaraz under eight hours' journey more, due to the lagging and exhausted beasts bestridden by my assistants. Eight hours more of snow and numbing cold, cramped and weary! I was soaked to the skin;

hunger assailed me, and as I rode along I savagely attacked the ham-bone with my teeth. The flavour remains with me to this day!

After a period the rain and snow ceased falling, and descending from the saddle I jogged along for leagues in front of my mule, leading him by the long riata which forms an invariable part of horse-equipment in such countries. By this exertion I restored the circulation to my limbs, and being a good pedestrian I soon outdistanced my companions. Again I mounted. Soon the sky grew black, the trail disappeared, and the roaring of a mountain torrent—somewhere—perhaps a thousand feet below—fell on my ears. I drew rein suddenly, for I found I was upon the verge of empty space. The mule snorted with fear, and planted his feet resolutely upon the rock. Well was it we both acted so, for we had gone off the trail and were standing poised upon the edge of a frightful precipice, as I observed a moment later by the fitful light of the moon. I have seen it in my dreams since then!

Turning cautiously I gave the mule the rein, and, with his native sagacity, he soon found the trail again. There we awaited the arrival of the others. Two of the animals had failed, and their owners were journeying on foot, a method of advance which the Spanish-American abhors. At least I had the advantage over them of being equally at home on foot and in the saddle, although I denied myself the motive-power of the brandy-flask!

About six o'clock in the morning we reached the lowlands, and making a detour—for Huaraz was still far off—arrived at a village. Never have I beheld the primitive habitations of the Peruvian Sierra with such relief. In the cuartel, or rural police station, we found food and shelter. My name was known there, and the exploit which we had performed in crossing the snowy pass previously. Having first given directions for the care of the animals I threw myself upon my rugs and horsecloths, with my saddle for a pillow, upon the floor—an example imitated by my companions—and, weary for the moment of the Andes and of the world, I was soon in the land of dreams.

The Ivory Trade of Zanzibar.

By D. R. O'SULLIVAN BEARE, M.B.

Formerly British Vice-Consul at Pemba.

Among the most characteristic of the sights of Zanzibar—that strange eastern city of many surprises—is to be reckoned the appearance, in wonderful profusion on all sides, of tusks of ivory. They are to be seen stacked in great heaps in the Custom House sheds, lying about the premises of Hindi merchants, and carried through the streets on the heads of grunting mahamali, as the negro porters are termed. Of the total amount of ivory used in manufacture throughout the world, fully seventy-five per cent. is shipped from Zanzibar, which is still, as it has been for ages past, the great collecting centre for this valuable commodity. The remaining twenty-five per cent. is supplied chiefly from the West Coast of Africa and from India.

In times past, prior to the construction of the Uganda Railway, all ivory was brought down to the coast from the interior by means of caravans ; but a considerable proportion of the ivory collected throughout East Africa is delivered nowadays by the ivory caravans at various points along the railway for conveyance to the coast. The leaders of these ivory caravans are usually Arabs ; and they are generally financed by Hindi ivory merchants, who themselves rarely go much further inland than a few days' march from the coast. A Banyan advances to the leader of a caravan a certain sum in rupees, or a stock of articles suitable for barter in the interior, such as cloth, wire, beads, etc., and the borrower undertakes to repay this loan with interest upon his return to the coast. The interest charged is always very stiff, and it is never less than fifty per cent. upon the amount advanced. At the same time it must be remembered that the venture is a highly risky one. The lender is bound to wait a long period, sometimes extending to years, before he sees the borrower again. Not unfrequently the caravan never returns at all, having been attacked and annihilated by tribes in the interior ; and often it returns with considerably less ivory than is equivalent, at the current bazaar rate, to the loan advanced. Notwithstanding all of these disadvantages, the Hindis, who are inveterate speculators as a class, continue to invest their money in this way, and in the majority of cases the venture turns out successfully for them. It is worthy of note that the caravan leaders, as a body, endeavour faithfully and honourably to fulfil the conditions of the contracts, into which the question of security rarely, if ever, enters ;

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[Gomes, Zanzibar, Phot.

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and matters have been thus conducted to the satisfaction of all parties for generations past.

No regular auction sales of ivory are held in Zanzibar. Each merchant sells, from time to time, whatever stock of the article he may have on hand to the representatives of American or European firms in Zanzibar ; or else he ships direct to London, Hamburg, or Bombay. Fully eighty per cent. of all the soft ivory which is exported from Zanzibar goes to the United States. The greater part of it is there utilised in the manufacture of piano and organ-keys, a fact which indicates the enormous magnitude of those industries in America. To attempt any consideration of the thousand and one other uses to which ivory is put in various branches of manufacture throughout the world would be foreign to the purpose of the present article. Suffice it to say that what is known as "soft" ivory is solely employed in all the best class of work, while in the manufacture of handles for the inferior grades of cutlery, for paper cutters, and for such-like articles, use is made of "hard" ivory.

These terms, "soft" and "hard," indicate accurately the physical characters of the two main classes of ivory. Soft ivory is that which lends itself readily to the processes of carving and turning, whereas hard ivory is not only brittle, but it is also of such dense and compact structure that only within the past few years has machinery been devised capable of cutting it. Furthermore, soft ivory is opaque even in very thin layers, while the hard variety, under like conditions, is highly translucent and requires a backing to remedy this defect.

The ivory trade of Zanzibar is wholly in the hands of Indian merchants —Banyans and Khojahs—and these people have their own terms and methods of classification for the article. The soft or prime ivory they designate by the Swahili word "pembe" (ivory), and it is classified according to weight. If a tusk scales forty pounds and upwards, they term it "Pembe bab Ulaya," meaning "Ivory destined for Europe." This class of ivory is shipped to the European and American markets. To English-speaking buyers, such tusks are known as "large, prime ivory." A tusk weighing between twenty-five and forty pounds the Hindi merchants classify as "bab Cutch," because formerly such tusks were sent to that country, where they were used for making armlets, anklets, and other ornaments. Although very little ivory of any kind now goes to Cutch, yet the term is still in vogue. English-speaking buyers describe tusks of this weight as "medium, prime ivory." Tusks of less than twenty-five pounds in weight are termed by the Hindis "Pembe calasia," the latter being a word of Cutch origin meaning "small," and in the home markets they constitute what is known as "ball ivory," from the fact that they are used chiefly for the manufacture of billiard, pool, and bagatelle balls. Each of these small tusks is supposed to cut

up into at least three balls of standard diameter; the average number is five, and in many cases it runs to six.

An elephant's tusk consists of an upper hollow portion, termed the "bamboo," and a lower solid portion constituting the body and point. The bamboo portions of "calasia" ivory are generally cut off in Zanzibar and sent to Bombay, there to be converted into armlets; while the solid portions go mainly to Hamburg.

Broken and damaged ivory is classified as "bab China," being shipped to the Celestial Empire, where it is utilised in the making of small ornaments and knick-knacks, in the carving of which the Chinese excel.

To hard ivory, the Hindis apply the term "gendi," a word derived from the Cutch "genda," meaning "a rhinoceros" and, by metonymy, "hard." The difference in value between the two species of ivory is very considerable, soft ivory fetching, as a rule, one-third more per weight than the hard variety. The difference in outward appearance of the two kinds of tusks is sufficiently marked to be apparent even to an untrained eye. Thus the surface of soft ivory is dull, and the tusk is marked, both towards the point and also about the middle portions, with longitudinal cracks of a dark or black colour. These cracks or fissures are usually quite superficial, rarely penetrating much below the "skin," or enamel.

A tusk of hard ivory, on the other hand, is generally less curved, and it presents a perfectly smooth and characteristically glossy surface; the longitudinal cracks are confined to the pointed extremity, and they penetrate deeply into the substance of the ivory.

The cause of this difference in quality of ivory is not rightly known, and the question constitutes a problem for naturalists to solve. The Hindi merchants hold the somewhat doubtful theory that soft tusks are borne by elephants which live in places where water is scarce, and that in regions where that element is abundant, the tusks are of the hard variety. Much more likely is it that the constitution of the soil, especially its proportion of calcareous salts, and the amount of mineral matter present in the water, are the factors which determine the variation. Certain it is that gendi ivory is furnished by elephants which inhabit a comparatively circumscribed area of Central Africa, comprising the regions of Unyoro, Uganda, and Ujiji, also the Manyuema country and the districts around the head waters of the river Congo. Gendi ivory finds its way to Zanzibar mainly through the coast towns of Bagamoyo, Dar-es-Salaam and Kilwa, while practically all of the tusks shipped from other parts of the coast are of the soft variety.

Between the two extremes of hard and soft ivory there exist various grades, as might be expected, and sometimes it is a little difficult to decide whether a tusk is really gendi or not. Occasionally a tusk will be found to consist of a combination of the two kinds; the point and lower

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[Gomes, Zanzibar, Phot.

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The Record Pair of Tusks.
(Weights 230 lbs. and 235 lbs.)

portions being composed of gendi, and the middle and upper parts of soft ivory. The Hindis apply to this exceptional variety the Cutch term "chotara," meaning a "cross" or "mixture," and for the following reason: In years gone by, the Hindi traders were not in the habit of bringing their wives with them to Zanzibar and the East African coast, and it was their usual custom, in order to solace themselves during the period of their grass-widowerhood, to contract temporary alliances with Sawahili women, the children born of such alliances being called "chotara." The Hindi ivory merchants believe that the ivory alluded to, consisting of a mixture of the two qualities, is produced by elephants which are the outcome of a cross between the two species of soft-tusked and hard-tusked animals, and hence the term "chotara" which they employ to describe it.

The colour of ivory as it arrives in Zanzibar varies considerably. When fairly clean, it is mostly of a dull yellowish hue resembling that of bone, but often tusks arrive stained a deep orange-red, or even black. These colours are artificially produced. Certain tribes in the interior are in the habit of rubbing on the tusks a mixture of cocoa-nut oil and different kinds of ochre, possibly with the idea of preserving the tusks, while others smoke them over a fire. Such surface discoloration does not impair the value of the ivory provided that it is otherwise sound. Again, it happens from time to time that a tusk will exhibit marks of extreme age, with the enamel eroded and the entire surface showing traces of what geologists call "weathering." Such a tusk has probably lain for a long time in the forest or upon the plain, until at length it has been found by chance; or else, possibly, it may have served as part of a pallisade round some native village in the remote interior, exposed to atmospheric influences for a long period before it was finally bartered or stolen.

It is not unusual to find a tusk either split from the effect of a bullet, or else exhibiting one ragged hole through which the missile has entered; on cutting up such a tusk the bullet itself will often be found deeply embedded in the substance of the ivory.

Tusks also arrive from time to time which show traces, in the mottling upon them, of long immersion in water. It is not unlikely that the owners of such tusks, warned of the approach of an enemy, concealed their treasure before they fled in the nearest stream or lake to save it from spoilation, and a long interval must have elapsed before it was recovered. Tusks, too, come into the market which, in their seamed, cracked, and blackened appearance, offer unmistakeable evidence of having been subjected to the action of fire. These scorched pieces of ivory all too frequently tell the tale of villages raided, huts given to the flames, and the wretched inhabitants either butchered or sold into slavery. The conduct and methods of the leaders of "trading" caravans in districts of the remote

interior are not always very scrupulous, and the tusks of the coveted ivory which they succeed in bringing down to the coast have only too often been obtained by the perpetration of unmentionable barbarities. Indeed, ivory ranks with diamonds in the matter of its association with deeds of violence, rapine, and bloodshed.

Ivory is subject to at least two different kinds of disease for which, however, the Hindis have but one descriptive term—the Sawahili word "n'dui," which literally means "smallpox." The diseased conditions manifest their presence in the bamboo and in the point of the tusk respectively. In the former case, the affection appears upon the inner surface of the hollow, either as a series of nodulous projections, or else as an irregularly roughened state of the surface. The nodules frequently resemble bunches of grapes, and are so slightly adherent to the surface that, in old tusks, they can readily be detached. Both forms of excrescence are the results, probably, of severe and prolonged inflammatory action. Towards the point of the tusk the second variety of disease appears in the form of small patches of more or less discoloured tissue, or else as small cavities, and in either case these appearances are indicative of degenerative change analogous to caries in the human tooth. If the diseased conditions of either variety are merely local, the value of the tusk is not very materially lessened, but if the affection extends deeply into the substance of the ivory, then the tusk is practically worthless. The existence of these growths and degenerative changes in the tusks warrant our concluding, from analogy, that elephants are subject during life to "toothache" on a scale so extensive and in a degree so acute as to call for our fullest sympathy.

Tusks vary very much as regards both size and weight; it is not always the longest tusks which are the heaviest. The mightiest pair of tusks on record were sold in Zanzibar in 1899. The tusks in question scaled respectively two hundred and thirty pounds and two hundred and thirty-five pounds, giving the phenomenal total of four hundred and sixty-five pounds. They were taken from the same elephant, an old bull, which was shot by an Arab with an old-fashioned muzzle-loading gun in the neighbourhood of Kiliman'jaro. Not only were the tusks in question of wholly exceptional weight, but they were also of exceptionally good quality—best soft ivory throughout, and with never a flaw in either of them. Their commercial value was just £1,000. The accompanying photograph gives an idea of their noble proportions.

Another notable pair of tusks, of which the combined weights exceeded four hundred pounds, and which also were of unimpeachable quality, were forwarded to His Majesty the King of Portugal some years ago from Mozambique. Such figures are, however, wholly exceptional, and a tusk of over one hundred and twenty pounds is sufficiently rare to

attract attention. The average weight of all the tusks imported into Zanzibar does not average more, probably, than thirty to forty pounds.

Abnormally weighty tusks are, as a rule, comparatively short, but very thick, and furnished with a small bamboo. Such were the characteristics of the great tusks alluded to above. They were doubtless obtained from bull elephants of great age, the veritable patriarchs of their herds. The tusks of greatest length are usually of the gendi species, and occasionally specimens arrive which exceed ten feet in length. Sometimes these are almost straight, indicating the gigantic stature of the animals which produced them. Such long tusks are nearly always furnished with a very deep bamboo.

The records of the Zanzibar custom-house show that the import of ivory averages some twenty thousand frasilas annually. (A frasila equals about thirty-five pounds.) Little of the ivory which reaches Zanzibar is obtained from elephants recently slain, but even the Hindi experts, with all their experience, cannot estimate the age of a tusk, save in exceptional instances, beyond ten years. There exists, doubtless, an immense quantity of ivory stored up in various parts of the interior of Africa, where it has been accumulating for generations as the only stable investment for capital, and in spite of repeated prognostications to the contrary, there seems to be little or no diminution in the supply of this valuable commodity.

TRAVEL-LITERATURE

A Great Arctic Explorer.

THE early portion of Sir Clements Markham's *Life of Admiral Sir Leopold McClintock* (John Murray ; 15s. net) reads like a chapter from one of Marryat's stories. McClintock was only eleven years old when a cousin in the navy secured for him an appointment as a first class naval volunteer. That was in 1831, and the journey from his home in Dundalk to Portsmouth took a couple of days to perform. Sir Clements tells us that the little lad took with him "his most valued possessions, a bag of marbles and a bottle into which he had squeezed some apple juice." His cousin went down to the midshipman's berth to look for the lad after his arrival, and he used to say that Leopold was so small that it was like looking for a flea in a blanket. All on board were very kind to the youngster, and the captain used to set aside for him stores of sweets and other delicacies from his table.

As time went on McClintock rose slowly but steadily in the service, and became known as a very capable and energetic officer. His application for service on the Franklin search expedition of 1848–1849 under Sir James Ross was successful, and proved to be the turning point in his career. Between 1848 and 1859 he passed no fewer than ten navigable seasons and six winters in the Arctic regions, finishing up by commanding the expedition sent out by Lady Franklin on board the *Fox*, which discovered the last records of Sir John Franklin's ill-fated enterprise. During these twelve years McClintock developed a remarkable genius for the organisation of sledge expeditions. He also displayed unusual aptitude in inspiring those under him to put forth their best endeavours, and won not only the respect but the affection of all his men. Sir Clements Markham, who was himself a member of one of the expeditions in which McClintock took part—that under Captain Austin in 1850–1851—tells the story of the late Admiral's career in the forceful and graphic manner characteristic of his whole-hearted enthusiasm for exploring enterprise. The book is well supplied with maps and illustrations, and the record it contains of the life of a great seaman brings forcibly home the value of the polar regions as a field for the exercise of the fine qualities that have won for the officers and men of the British Navy their incomparable reputation.

In Wildest South America.

THOUGH it is over fifteen years since Dr. Richard Spruce died and between forty and fifty years since he completed his botanical explorations in tropical South America, it is only now that a selection from his diaries and letters has been published under the title *Notes of a Botanist on the Amazon and Andes* (Macmillan and Co. ; 2 vols., 21s. net). The task of editing the great mass of material left behind by Spruce has been performed by Dr. Alfred Russell Wallace, who contributes a biographical introduction. The two were personal friends as well as

fellow workers in the realm of science, both being engaged in scientific exploring work in South America at the same time. It is curious, at this distance of time, to read in the opening passage of Spruce's narrative that when he sailed for South America in 1849 one of his fellow passengers was "Mr. Herbert Wallace, who was going out to join his elder brother, then engaged in the exploration of the Amazon valley of which he has given so pleasant an account."

Spruce himself was born in 1817, the son of a schoolmaster in Yorkshire, and on the Yorkshire moors he early found an opportunity for exercising his love of botany. On reaching manhood he held for some few years the post of mathematical master in York Collegiate School, but afterwards devoted himself entirely to the pursuit of botanical studies. He was a man of very delicate health, which for the last twenty years of his life kept him almost entirely confined to the house; but between the years 1849 and 1864 he accomplished a vast amount of arduous travelling, his journeys extending right across equatorial South America from the mouth of the Amazon to the coast of Peru. Though primarily engaged in botanical researches—his work in this respect has been described by Mr. George Bentham as "the most important we have had since the days of Humboldt"—Spruce was fully alive to the opportunities his journeys afforded for observations of a more general character, and the two volumes of his writings edited by Dr. Wallace form an entertaining as well as an instructive record of adventurous travel. For the details of his experiences readers must consult the volumes themselves, but we may mention that among the results of Spruce's travels was the discovery and translation of one of the few remaining copies of an official Spanish order enjoining search to be made for the famous treasure of the Incas, with an accompanying detailed "guide" and map. Though this search has never been prosecuted to a successful issue, Dr. Wallace, after a careful examination of the documents, declares himself convinced that the "guide" is genuine and trustworthy, and that by closely following the directions given it may still be possible to solve the problem of the treasure. The volumes contain seven maps, a portrait, and seventy-one illustrations, many of the latter being reproductions of Spruce's own drawings.

Life on the Gold Coast.

Major F. G. Guggisberg and his wife, better known as Miss Decima Moore, have provided an admirable example of the art of literary collaboration in *We Two in West Africa* (William Heinemann; 12s. 6d. net). In writing a book about a new country, the experienced traveller or administrator is apt to ignore many interesting features to which he has grown accustomed, while on the other hand a novice, though appreciating what is new and interesting, often draws erroneous conclusions from what he sees. In the present volume Mrs. Guggisberg writes very brightly about the impressions she received on a first visit to the Gold Coast Colony, while her husband supplies more weighty information—notably, it may be presumed, some illuminating chapters on the gold-mining industry. There is apparent none of the awkwardness of joint authorship, the book throughout being written as a personal narrative by the lady. Mrs. Guggisberg tells how the old west coasters will sniff the smell of forests and swamps and rank vegetation long before the ship is come in sight of the coast.

She gives a graphic account of the difficulties of landing through the surf and draws an instructive picture of life in the towns, with its hard work and relaxation in the shape of golf, polo, cricket, and tennis. Afterwards she accompanied her husband on a long journey through the interior for the purpose of fixing the boundaries between the territories of different tribes on the borders of Ashanti, and describes, not without a sense of humour, the mingled pleasures and discomforts of travel through the bush.

One of the pleasantest features of the book is the sympathetic way in which Mrs. Guggisberg writes of the natives. She seems to have found them invariably responsive to kind treatment, cheerful, obliging, and hard working. At the end of one day's march she says of one of the "boys": "I expect James slept well that night. I do not suppose that he had sat down for more than an hour since five that morning, for in addition to packing and unpacking and walking fourteen miles,he had provided us with all our meals, including decorating the dinner-table with flowers and waiting on us in a spotless white suit with polished brass buttons, into which he had changed from his khaki working suit. The cookie, too, was a wonder, for our dinner of soup, chicken cutlets, curry, vegetables and chocolate shape, followed by a cup of excellent coffee, was just as hot and as well-cooked as it would have been in our comfortable bungalow at Accra." Her conclusion is that the West African native is "the cheeriest chap in the world, and even in the most adverse circumstances and under the most trying conditions a little jest will start him laughing and chattering gaily with his fellows. There are only two things that warp his good temper—drink and injustice. Drink ruins him mentally and physically far quicker than it does a European; it makes him morose, insulting, and impossible to deal with. Injustice has almost as bad an effect on him—he broods over it and gradually becomes dangerous. But injustice is rare, and the more I saw of the dealings of the Englishman with the native on the 'Coast,' the more I was struck with the rarity."

The volume is profusely illustrated and provided with a sketch map, on which, however, many of the places mentioned in the narrative are not marked.

The Frontiers of Baluchistan.

It would perhaps have been more appropriate if this book (*The Frontiers of Baluchistan*; Witherby & Co., 12s. 6d. net) had been called the Frontiers of Persia—or of Afghanistan—for it deals chiefly with the story of the Boundary Commission which was appointed by the Indian Government to delimit the frontier line between Persian and Afghan Seistan in 1902. The previous demarcation of the boundary between Afghanistan and Baluchistan (the direct result of the Durand Mission to Kabul), in which the author, Mr. G. P. Tate, also took part, is disposed of in the first three chapters; and the story of the difficulties which beset it, of Afghan procrastination and of the wearisome struggle with the natural obstacles which so plentifully bestrew the desert region to the south of the Helmand River, is but the introduction to the more serious business of surveying and demarcating Seistan.

There was a time when Seistan loomed large in the heated arguments concerning the defence of India. Its geographical position is so excellently well arranged

as a sort of half-way house for Russian advance towards the Indian frontier that not even the most strenuous advocates for a passive policy could fail to take it into account. And there was also the evidence of history. This final reservoir of the waters of the Helmand (and of other considerable rivers of Asia) always had been a convenient oasis in the midst of sterile country for a fresh take-off Indiawards for invaders from the north, although the open road for forward movement never led to Quetta and the Indus, but always to "Arachosia"—that is to Kandahar and to Kabul. But since we have opened the way through the frontier hills to Quetta from the Indus Valley, and a trade route through the desert to Seistan from Quetta, Seistan again assumes a position of more than passing interest. Consequently this, the first book that has ever been written about Seistan by a fully qualified observer (one may call Mr. Tate an expert in Seistan geography), possesses an importance which is not to be measured by its mere literary value, but will, in spite of the author's careful reticence on all matters of political or military significance, certainly insure it a place amongst standard works on the geography of the Indian frontier.

Mr. Tate's experiences in Baluchistan date from 1886, and as he is not only an expert surveyor and observer, but a student of history, he has probably amassed more original information about that country than any other living authority. Somewhere in his book he says that life in Seistan is like residence in a museum, so full is it of ancient records of the past and of strange existing natural phenomena. As one follows him through the pages of his story one feels, indeed, as if one were being conducted through a museum, for there is rather too much of the repeated presentation of isolated specimens without those connecting links of explanation, historical or scientific, which would leave one in possession of a continuous history, or ensure a realisation of the characteristics of the country as a whole.

Seistan has been usually described as a detestable country, subject to all the plagues of Egypt with a few more thrown in peculiar to itself. We have them all again in this book; the fierce raging hurricanes of wind; the curse of hard-biting flies and other pestiferous insects; the plague of snakes which ushers in the spring; terrific heat and terrific cold—all of which we have experienced—combine in this boundary story with the incidence of a terrible scarcity, amounting to famine; a deadly starvation which set men in ghastly competition with vultures for the carcases of camels which had died of disease. It would almost seem as if the death of the camels was the salvation of the people. A final horror, too, sprung up in the shape of mad wolves and jackals, the frightful ravages of which amongst the baggage animals was a serious loss to the Commission and a perpetual anxiety to its followers. But interweaved with all this there is many an eloquent description of scenes of real beauty and peaceful enjoyment. The great lakes, which spread their flat mirrors to the sky, bordered with wide acres of reed beds, amongst which there is to be found a weird population of amphibious fisher folk; the brimming canals, carrying life and prosperity to the fields, fringed with willow and backed by forests of flowering tamarisk, chequering the landscape with masses of colour; the majestic outlines of those remarkable rocks and hills, the eternal landmarks of the Baluch desert—these are all features of interest far more entrancing than are the flat white terraces,

or the scurrying clouds of wind-driven sand which fill the depths of the Seistan "Jehannam" with shifting sand dunes.

But the supreme compensation for a residence in this remarkable country is the field which it presents for antiquarian research. And in this branch of his subject our author is somewhat disappointing. We are taken from one ancient site to another, and we are told that on the right bank of the Helmand, near the remains of the Kaiani capital, Kala Fath, are 500 square miles of ruins. On the southern border of the lakes, too, in the flats of Seistan, are miles upon miles of the dried bones of past architectural magnificence, but nothing which dates from any remote period. The countless sites indicated in the excellent little map at the end of the book (in which by the way there are not quite enough names introduced) prove not so much that there was at any one time a thick population in Seistan, as that everything upstanding in that country and exposed to wind-driven sand is inevitably short lived. Evidently there is nothing very ancient to be seen above ground in Seistan. And yet we know that there were cities there in the time of Alexander, and it is more than probable that they were coeval with the Assyrian Empire. The rapidity with which ancient bricks will disappear under a demand for modern building material is proverbial, and it is no matter of surprise that nothing (unless indeed the large bricks at Karku in Mian Kangi were ancient) was unearthed of the character which gives such interest to Babylonian or Persian relics. But coins were found dating from Scythian times, and a little digging at Rudbar or Zahidan would surely have been productive of relics much more interesting than ever appertained to the times of the Kaiani Maliks.

But this is by the way. The "Frontiers of Baluchistan" is not only an eminently readable book; it is the only unofficial work which contains anything like a full and fair illustration of a very remarkable tract in Asia about which much has been said and written and very little known to the public.

T. H. Holdich.

Wanderings in the Western Balkans.

The greater part of *A British Officer in the Balkans* (Seeley & Co.; 16s. net) is taken up with an account of travels in Bosnia and Herzegovina. The author, Major E. Henderson, writes very pleasantly about the things he saw and did, and manages to incorporate a good deal of information about the country. There are also chapters on Dalmatia and Montenegro and a peep into Magyar-Land. Major Henderson does not seem to have brought away a very favourable impression of Hungary as a resort for tourists. The petty officials, he says, seem to consider themselves the masters of the public rather than public servants, and the difficulty of travelling where the officials will use no language other than their own, and that a language which no one speaks outside of Hungary, naturally opposes a serious obstacle in the way of tourists who would otherwise visit the country and explore its beautiful interior. Major Henderson gives an amusing account of a village fête in Hungary. "The great attraction was the dancing, going on, not on the green, which perhaps was not thought level enough, but on an open dusty space in the village, at the back of the inn. The musicians were, as everywhere in Hungary, gipsies, but habited very differently

[From the "Frontiers of Baluchistan."

Luri Musicians.

Luris are the gypsies of Western Baluchistan. They combine a knowledge of working in iron and other metals, and of surgery in some cases, with music and less reputable means of livelihood.

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from the accepted idea of a gipsy's get-up. They were dressed in black coats and waistcoats, black ties, dark if not black trousers, relieved only by white collars and cuffs, not very clean. . . . . But the peasant ladies at this fête! The marriageable girls were indeed a sight, all like inflated balloons; for it is *de rigueur* for each girl to dress herself out with petticoat after petticoat, their number being a sign of the wearer's well-to-do position. A village heiress will run to as many as twelve, one over the other, the starched print or muslin skirt worn over them standing out at an obtuse angle from what should be a waist!"

There is a good map at the end of the volume, the interest of which is enhanced by a large number of reproductions of excellent photographs.

The Island of Madeira.

THE many visitors who are annually attracted to Madeira in pursuit of health or pleasure will find much to interest and instruct them in Mr. W. H. Koebel's *Madeira, Old and New* (Mr. Francis Griffith; 10s. 6d. net). The book is divided into two parts—the first devoted to some historical sketches of the island, in which Mr. Koebel has incorporated many interesting and romantic stories and legends; the second giving an account of Madeira as it is to-day. Mr. Koebel points out that the "carro"—the characteristic vehicle of Madeira—was first introduced in 1848 by a British officer, Captain Bulkeley. To-day there are many varieties of carros, by far the most imposing being the ox-carro, which is used as a vehicle for passengers. This vehicle has no wheels, and is really a gigantic sledge. "Its structure is simple enough, a rather graceful, boatlike body with seats facing each other, protected by an awning above and by curtains that may be drawn or closed at will. Yoked to its massive pole by means of wooden collars are a couple of oxen, each with a leather strap hanging from a hole drilled in the horn." The book is illustrated with a number of beautiful photographs taken by Miss Mildred Cossart, and has a small map of the island.

South Polar Chart.

THE return of Mr. Shackleton's Antarctic expedition has been made the occasion for the publication by Mr. Stanford of an excellent map of the South Polar regions and other latitudes extending far enough north to take in parts of Australia, South America and South Africa. On the map are laid down in red the routes both of the National Antarctic expedition on board the *Discovery* and of Mr. Shackleton's journey, so far as the latter can be plotted from the information contained in his telegraphic despatches. The tracks are likewise shown of the *Challenger*, *Valdivia*, *Belgica*, *Gauss*, *Scotia*, and *Antarctica* expeditions. Contours show ocean depths from one hundred to five thousand fathoms, and there are also indicated the approximate limit of the pack ice, the line of freezing point in air, and the northern limit of icebergs, during the austral summer months. The large extent of the map which is still shown as a perfectly white space helps one to realise how much still remains to be done in the way of exploring the regions around the Southern Pole. The price of the map unmounted is 3s., or mounted and in a case 5s.

THE EXPLORING WORLD

The Siege of the South Pole.

All other events in the exploring world during the past few weeks have been overshadowed by the return of Mr. Shackleton's expedition from the south polar regions. In our present issue Mr. L. C. Bernacchi, who has himself spent three winters in the same quadrant of the Antarctic Circle in which Mr. Shackleton made his way south, discusses the results of the expedition so far as they are at present known and indicates the position which the expedition occupies in the history of Antarctic exploration. The precise significance of the geographical and scientific results cannot be determined until Mr. Shackleton arrives in this country and publishes a full account of the work accomplished; but the measure of his great achievement in reaching a point only 97 geographical, or 111 statute, miles from the South Pole may be gauged from the fact that the Royal Geographical Society has already decided to bestow on the explorer a special gold medal. The allocation of the two royal medals annually at the disposal of the Society had already been determined before the news of Mr. Shackleton's achievements reached this country, the recipients of these medals being Dr. M. A. Stein, to whose magnificent archæological and exploring work in Central Asia we have more than once made reference, and Colonel the Hon. M. G. Talbot, R.E., who has directed, and in many cases himself personally conducted, extensive survey operations on the north-west frontier of India and in the Anglo-Egyptian Sudan. The Founder's Medal and the Patron's Medal of the Royal Geographical Society are universally recognised as being the blue ribands of the geographical world, but the Council of the Society felt that they could not wait another twelve months before testifying in tangible form to their appreciation of the brilliant character of Mr. Shackleton's explorations. Only on three previous occasions has a special gold medal been awarded to an explorer, the recipient in each case being already the holder of a royal medal, which Mr. Shackleton does not yet possess. The late Sir Henry Stanley received a special medal after his return from the relief of Emin Pasha, Dr. Nansen was given the second after the voyage of the *Fram*, and the third went to Captain Robert Scott, R.N., on the return of the National Antarctic expedition on board the *Discovery*.

Work for Future Explorers.

We would direct special attention to the closing passages of Mr. Bernacchi's article in which he deprecates any suggestion that the geographical and scientific problems of the South Polar regions have now been solved. Some important points in the geography of the Antarctic regions have been cleared up, but far more remains to be done than has yet been accomplished. Along a line which runs practically due south from New Zealand, British explorers have penetrated nearer to the South Pole than anyone has gone to the North Pole. At the eastern end of Ross's Great Ice Barrier land has been

sighted, but never trodden—King Edward VII. Land. At not one single point elsewhere in the Antarctic regions, however, has any expedition been south of the seventy-fifth parallel; in other words, except in the Ross Quadrant, no explorer has been within a thousand miles of the South Pole. At present the French expedition which sailed under Dr. Charcot in August last for the region south of Cape Horn is the only force at work in the far south. At least three other expeditions, however, have been projected. It is difficult to know what importance to attach to Mr. Borchgrevink's announcement that he intends to lead another expedition to the South Polar regions. At the moment of writing no particulars about his plans are available. He has done little or nothing in the way of exploration since he led the expedition on board the *Southern Cross*, which was financed by Sir George Newnes, and the statement that the new expedition has been organised under the auspices of the International Polar Commission does not add greatly to the importance of the enterprise. Most of the leading European geographical societies have stood aloof from the Commission, which was established some two or three years ago and is mainly a Belgian institution. For some time past a project has been on foot for a Belgian Antarctic expedition under M. Arçtowski, but of late little has been heard of this enterprise, and it is to be presumed that difficulty has been found in raising the necessary funds.

Proposed Scottish Antarctic Expedition.

The third expedition openly projected is that in which Dr. W. S. Bruce hopes to engage. Dr. Bruce's plans were first published in the summer of last year. His great experience both in the Arctic and the Antarctic regions—his last voyage south was as leader of the Scottish antarctic expedition on board the *Scotia*—must ensure serious consideration for any new proposals which he puts forward. The programme he has drawn up embodies an excellent plan of campaign, but it is open to the criticism of being excessively ambitious. The main idea is excellent—to establish a base on Coats' Land, a stretch of coast discovered during the voyage of the *Scotia* far to the south of the Atlantic Ocean, and thence to conduct explorations in the wholly unknown region stretching east, west, and south. In the last direction Dr. Bruce aims at passing beyond the South Pole, and making his way out on the far side of the Antarctic area. There is no harm in stating now that Mr. Shackleton cherished the ambition of pushing beyond the South Pole and making his way out on the side of the Atlantic, but, recognising that such a project might seem unduly daring, he was wise enough not to publish his ambitions abroad. Dr. Bruce is less cautious and openly contemplates a journey of first one thousand one hundred miles to the pole, and then another eight or nine hundred miles to the edge of Ross's Great Ice Barrier. This would be a journey longer than that which was carried out by Mr. Shackleton, who for half the distance covered, it must be remembered, was retracing his steps and relying for food supplies on the depôts he had established on the outward half of the journey. But if some of Dr. Bruce's plans appear rather extravagant, there is scope for excellent work to be done by an expedition wintering in Coats' Land, and the progress of Dr. Bruce's efforts to secure the necessary funds for another expedition will be watched with much interest.

Mr. Roosevelt in Tropical Africa.

Seldom has the extent to which the *personnel* of an expedition influences the notice taken of it by the public been more strikingly exemplified than in the case of Mr. Theodore Roosevelt's departure for Eastern Equatorial Africa. The doings of an ex-President of the United States, especially when that ex-President happens to be a man of Mr. Roosevelt's energy and determination, naturally attract more attention than their intrinsic importance perhaps justifies. At one time it was understood that Mr. Roosevelt's tour in tropical Africa on the completion of his term of office would be merely in the nature of a hunting trip. This has not proved to be the case. Mr. Roosevelt will engage in collecting work for the Smithsonian Institution and the New York Natural History Museum, and will be accompanied by three expert naturalists—Major E. A. Mearns, Mr. J. A. Loring, and Mr. E. Heller. There is plenty of scope for zoological investigations in tropical Africa, but it is, of course, Mr. Roosevelt's personal reputation less than the work which he hopes to carry out that has led to his departure being signalised by such a flourish of trumpets. Mr. R. J. Cuninghame, an English hunter and naturalist, will act as the ex-President's guide and friend in British East Africa, and Mr. Selous will also form a member of the party for a short time. Mr. Selous will not, however, be a member of Mr. Roosevelt's expedition. Much has appeared about the famous big game hunter's relations with Mr. Roosevelt, but the facts are as follows. When Mr. Roosevelt first conceived the idea of this African journey he approached Mr. Selous with a request for advice about the plans for the expedition. It was then Mr. Roosevelt's intention to enter Africa by the Nile and make his way out by the east coast. Mr. Selous pointed out, however, that it would be far better for Mr. Roosevelt to make his way first to the highlands of British East Africa and there get acclimatised before entering the fever-breeding swamps and forests of the Upper Nile Valley. If this is advisable in Mr. Roosevelt's own case it is doubly so in the case of his son Kermit, who is still two or three years below the age at which it is generally considered safe for young fellows to undertake an extended journey in tropical Africa. Mr. Selous has purchased for Mr. Roosevelt part of the equipment for the expedition, and he has been invited by Mr. Roosevelt to accompany him on some of his early excursions, but he has gone out to British East Africa primarily as the guest of Mr. McMillan, the American traveller, who owns a large estate near to Nairobi. Mr. Selous' outfit will be of the same simple character that he described in the February number of *Travel and Exploration*. While in British East Africa he hopes to be able to do a little shooting and collecting, and to make some observations at first hand on the habits of wild animals in their native haunts. In particular he is desirous of shooting a good specimen of the black-maned lion.

The Sleeping Sickness Commission.

The April number of the *Journal* of the Royal Army Medical Corps contains an interesting article by Colonel Sir David Bruce describing the arrival in Uganda and programme of the work of the Sleeping Sickness Commission sent out under his direction by the Royal Society. Sir David Bruce found Entebbe greatly improved since he was there last in 1903. The thatched

roofs of the houses have been replaced by corrugated iron, all the dwellings have been provided with glass windows, and the town can now boast of a first rate club, an excellent golf course, and a motor-bus which runs into Kampala daily. Living quarters and a laboratory for the use of the Commission have been established at Mpumu, twenty-seven miles east of Kampala, on the top of a hill rising some five hundred feet above the surrounding country. Sir David Bruce thinks that in all probability experience will show that a mistake has been made in placing the laboratory in such an isolated place. Mpumu has, however, the advantage of a temperate and pleasant climate, the temperature ranging last November and December between 57° and 85° F. The rainfall is high, between five and six inches falling in December, though that is one of the driest months of the year. The hill is formed of ironstone, and thunderstorms are common. Only a few days before Sir David Bruce wrote, a tree within one hundred yards of his house was struck by lightning and torn to ribbons. In addition to the investigation of the sleeping sickness, the Commission is charged to inquire into the nature of the various animal trypanosome diseases of Uganda, as well as an important disease among calves called m'kebe. The trypanosome disease is causing a large number of deaths among the Government transport oxen as well as among the native cattle, while m'kebe is said to be responsible for the death of about half the calves born in Uganda.

Expedition in Arabia.

Writing to us from Damascus on March 19th, Mr. Douglas Carruthers announces his return from the journey to which reference was made in our March issue. With four camels and three men he passed from the country of the Beni Sakhr, east of the Dead Sea, in almost a straight line across the Great Nafud to the oasis of Teima. There he was prevented by the Governor from continuing his journey to Nejd and eventually had to beat a retreat. Returning north, he explored the western edge of the Great Nafud and hunted the Arabian oryx. The journey was a success chiefly from the natural history point of view. The Arabian oryx has never before been seen in its native haunts, still less shot by Europeans; but Mr. Carruthers succeeded in obtaining five specimens of various ages.

Swedish Magellanian Expedition.

Writing from Cerro Castello in Southern Patagonia on February 19th, Dr. Carl Skottsberg informs us that he expects to be back in Sweden some time in May. Dr. Skottsberg, who acted as botanist on Dr. Nordenskiöld's Antarctic expedition, has been at work in company with other scientific experts among the islands and channels at the southern extremity of South America for the past eighteen months, and in that time has carried out important scientific explorations. Recently he has been engaged on a long ride through the whole of Patagonia from Nahuelhuapi to the Magellan Straits, following closely the line of the Cordillera of the Andes.

TOURIST·TRAVEL

Cost of Living Abroad.

It is often said that living in France or Italy is cheaper than at home, but this is a sweeping assertion which requires considerable qualification. As a matter of fact, owing to the heavy import duties in France, and the vexatious octroi charges, most articles of general consumption, with the exception of fruit and vegetables and milk, are a little dearer in France, while gas and firing cost a good deal more. No doubt it is possible for the Englishman to live as cheaply on French soil as in his own country, but this assumes that he lives as the inhabitants do, and copies the economical methods of housekeeping which obtain in France. In short, it is only by adopting in some measure the "simple life" that people going abroad to economise can fulfil their expectations. Indirectly, indeed, living abroad for an English family in France or Italy is more economical, because retrenchment, with a reasonable amount of society and entertainment, is possible in a French town, whereas it cannot be practised in England without a certain loss of caste. In short, the economy of foreign residence is mainly due to the non-necessity of keeping up a large establishment.

Thefts in Continental Hotels.

It is generally assumed by the tourist that the notice frequently posted up in hotel bedrooms by which the proprietor disclaims responsibility for loss of money or jewels, if the key of the room is not deposited in the office when the occupant leaves the room, gives the guest no chance of redress. A recent trial at Aix, in which a lady brought an action against a Nice hotel proprietor for damages for loss of jewels which had been left in an unlocked bedroom and stolen by a waiter, shows that this view is erroneous. The plaintiff, in spite of "contributory negligence" being proved against her, was awarded £80 out of a claim of £200. The verdict (which was confirmed on appeal) shows that such a notice is little more than a *brutum fulmen*. The fact that the theft was committed by an hotel employé no doubt told against the hotel proprietor.

A Riviera Trout Farm.

An important experiment in fish culture has been tried near Cannes by an Englishman, namely, a trout farm on a large scale. This should interest the ordinary visitor to the Riviera as much as fishermen and naturalists, as the trout are not intended to stock the Riviera streams but to supply the numerous hotels, which offer a practically unlimited market during the season. The trout farm is picturesquely situated in the Du Moulin Valley near Cannes, and there are some eighty thousand yearling trout in the numerous ponds and tanks.

Customs Examination at San Remo.

Hitherto one of the terrors of the railway journey from London to San Remo has been the Customs examination at the particularly inconvenient and ill-equipped frontier station of Ventimiglia. At last the railway authorities have made a reasonable concession, and one which has been demanded in vain for many years, namely, to allow luggage registered

to San Remo to be examined at that station. This innovation has only recently been put into practice, and now an office of the Italian Customs has been installed in San Remo station. This will probably have the effect of inducing a larger proportion of travellers to take the Marseilles instead of the Mont Cenis route.

Golf at Lugano.

Good progress is being made with the new Lugano golf links, which are charmingly situated at the foot of Monte Salvatore. The club has decided to start with a nine-hole course just under a mile and a-half round, the distance between the holes varying from one hundred and fifty to three hundred and ninety-seven yards. The links are within easy reach of the Varese, Cadenabbia, and Menaggio Clubs, so this portion of Italian Lakeland should attract devotees of the royal and ancient game. There will no doubt be many inter-club matches between the four sister clubs. The spring is *the* season on the Italian Lakes, and everything promises for a good season this spring at Lugano. The spring service of steamers has started running, and a funicular railway has been constructed from Sta. Margherita and Lanzo Interno.

The New Vatican Picture Gallery.

This new gallery has just been opened officially by the Pope himself, the anniversary of Raphael's birth being appropriately chosen for the date. The old Gallery (Pinacoteca) was formed by Pius VII in 1815 to contain the works of art carried off by Napoleon, but restored by the Treaty of Vienna. These pictures formed the nucleus of the Pinacoteca, and later on the paintings dispersed in the private apartments of the Quirinal, the Vatican, and the Capitol, and in various Roman churches were gradually added. But these valuable works were arranged without any scientific order or method in three or four small rooms badly lighted and difficult of access. To the new gallery have also been added important works of art from the Lateran and the Christian Museum and pictures collected from the various Papal Palaces. The new gallery consists of eight halls, in which the paintings are arranged according to schools. The chief pictures are to be found in Room IV., popularly known as the Raphael Room, including the world-renowned Transfiguration and the Madonna di Foligno. This room, indeed, is to the Vatican Gallery what the Tribuna is to the Uffizi or the Salon Carré to the Louvre, and is a kind of *sanctum sanctorum* of Italian art. The new gallery is on the ground floor below the Library, and the rooms are lofty and well-lighted. Owing to the change from the cramped rooms of the old gallery many of the well-known pictures look curiously diminished in size. Hitherto, as all tourists know, the art treasures of the Vatican (except the sculpture) have been free to the public, but now an admission fee of one lira is charged.

London to Japan in Sixteen Days.

Certainly the "shrinking of the globe" goes on apace, and now, owing to the Trans-Siberian Railway, as newly supplemented by the enterprise of the Great Eastern Railway Company and the International Sleeping Car Company, it is actually possible to reach Japan in sixteen days from London. The new service is viâ Harwich and the Hook of Holland, the passenger travelling to Moscow, viâ Berlin and Warsaw. At the ancient

capital of Russia the Trans-Siberian Railway is joined, the trains conveying first and second class passengers. Up to Moscow the service is daily, beyond bi-weekly, the trains leaving Moscow on Sundays and Wednesdays at 11.30 p.m. Vladivostock is reached on the eleventh day after leaving Moscow, and Japan (Tsourouga) is reached two days later. The Trans-Siberian trains are admirably equipped. The restaurant cars (lit, as are all the cars, with electric light) are furnished with a library, supplied with illustrated papers and games—dominoes, chess, draughts, etc. Bath-rooms with hot and cold water are also provided, while a barber and an infirmary nurse are carried on each train.

The Cape to Cairo Railway.

Considerable impetus has been given to the construction of "The Cape to Cairo" railway by the agreement entered into between the British South Africa Company and the various Belgian railway companies in the Upper Congo basin. Though railhead is still at Broken Hill, three hundred and seventy-five miles north of the Victoria Falls, great progress has been made with the new section which is to connect with the rich mines of the Tanganyika Concessions, beyond the Congo border. When the frontier of the Congo State (near Mayaba) is reached, two thousand two hundred miles of well-constructed railway will be open for traffic from Cape Town to the Congo. It is now possible to travel right through Africa from Alexandria to Cape Town by rail or steamer, with the exception of a comparatively short "missing link" of some six hundred miles.

Tourist Jottings.

Aviation on the Riviera is flourishing to judge from the advertisement of an hotel proprietor at Hyères, who announces among his attractions, "Landing-ground for aeroplanes"!

Mentone, not to be outdone by Nice, Hyères, Cannes and San Remo, will have a casino (on which a million and a-half francs have already been spent) next season.

The proprietor of the Riviera Palace Hotel, Cannes, has just opened the Grand Hotel de l'Europe at Bad Gastein. It has two hundred rooms and there is an orchestra daily.

The famous cottage at Bazeilles, near Sedan, known as Les Dernières Cartouches, has been acquired by a French patriotic society. The caretaker is one of the only three survivors of the band that made such a desperate resistance to the Bavarian troops in 1870.

The speed limit for motors in Monaco has recently been raised from twelve to fifteen kilometres per hour.

A magnificent hotel, the Guglielmina, is the latest addition to the numerous hostelries of Sta. Margherita, near Rapallo.

A funicular railway has been constructed between Territet and Mont Fleuri.

A new English church was opened for service recently at Siena.

The Via Lungo il Mugone, Rome, has been re-named Via Milton. This will commemorate the visit of the poet to Galileo in 1637.

The cypress tree at Sta. Maria degli Angeli, Rome, which, according to tradition, was planted by Michael Angelo, has been blown down in a recent storm. EUSTACE REYNOLDS-BALL.

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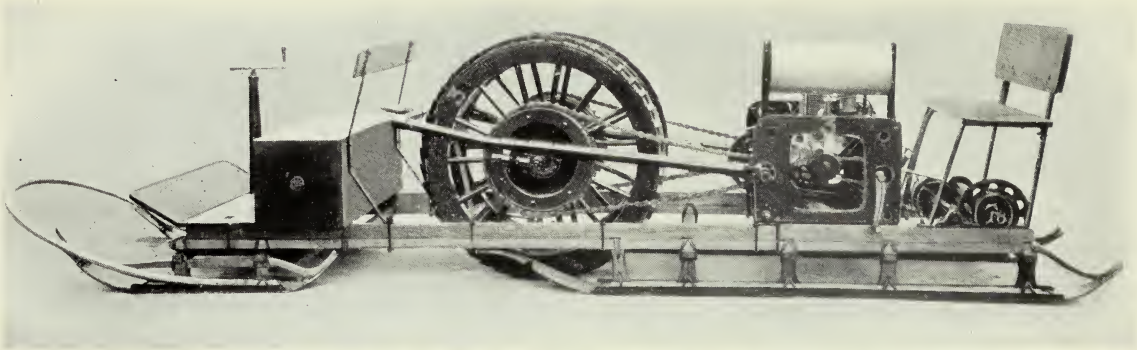

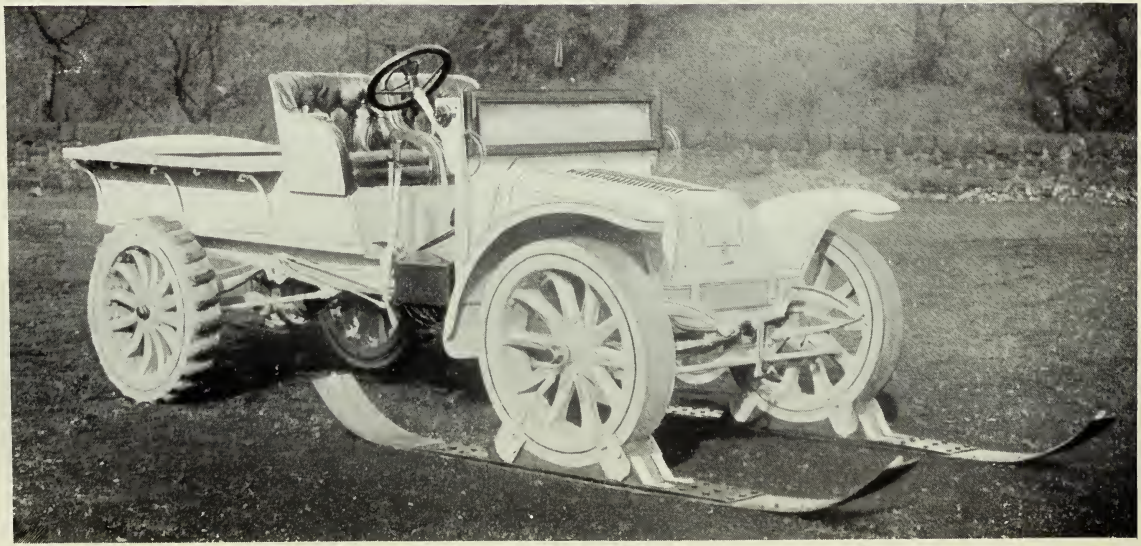

 Above—One of Dr. Charcot's Motor Sleighs. Below—Lieut. Shackleton's Motor Car.

Farthest South Motor Car.

"The Arrol-Johnston motor did much useful work over sea-ice, covering distances aggregating over a hundred miles a day, in spite of temperatures varying from four to sixty degrees of frost," writes Lieutenant Shackleton of the remarkable machine which he took with him on his Antarctic expedition, a photograph of which is reproduced on the opposite page. These words are memorable if only because they are the first account to hand concerning the first attempt that has ever been made to employ the internal combustion engine in connection with South Polar exploration. A notion of the difficult conditions under which the vehicle was employed may be gained from the statement that in the early stages of the expedition one of the ponies fell down a crack in the ice and had to be pulled out with ropes. When such a mishap occurs at the outset surely the prospect for a motor vehicle cannot be considered over promising, for power-driven cars are known to break down occasionally still, even when driven on well-engineered highroads. Yet this machine made it possible to travel over sea-ice at a speed far beyond any hitherto achieved by other means. The fact that the Great Barrier proved too much for it is scarcely surprising in the case of a first attempt; nor does it furnish proof that such surfaces may not be negotiated by mechanical traction in the future, when it shall be possible to build in the light of actual experience.

Engines and Low Temperatures.

Meantime it is very difficult even to guess at the lessons that have been learned as the result of Lieutenant Shackleton's pioneer essay at motoring in the Antarctic. One point is very noteworthy, however, because it concerns the vital matter of using an internal combustion engine in exceedingly low temperatures. The fact that the motor, as a motor, worked satisfactorily in sixty degrees of frost augurs well for future exploits, for explorers have need of mechanical traction, whether it be over frozen surfaces or through the air. Before Lieutenant Shackleton set out many motorists had foretold that if extreme cold were experienced it would be absolutely impossible to proceed with the machine. Happily the event has proven otherwise, so that we may expect interesting news from Dr. Charcot's French expedition to the South Polar regions concerning the behaviour of motor sleighs, one of three of which is also illustrated in this issue, so that it is possible to contrast the two systems of design employed.

Points of Contrast.

The first thing that strikes even the non-mechanical mind on glancing at the illustrations is that Lieutenant Shackleton had a machine of a more ambitious sort than those devised for the French expedition that started last August. The British-built vehicle can be used either as an ordinary motor-car with all four wheels revolving, or the

front pair can be fitted with runners in the manner illustrated, while the back wheels have spikes screwed into the holes that appear quite clearly in the cross-pieces round the rims of those wheels. On the other hand, the Charcot machine is a power-driven sledge only, and not designed as a motor-car. Furthermore, whereas the British machine is rated at fifteen nominal horse-power, has a four-cylinder air-cooled motor, provides comfortable accommodation for two men in the front seats behind the shelter of a screen, and provides at the back the means of carrying a great quantity of stores, as well as a third man in his sleeping-sack, the French-built sledges are fitted each with a single cylinder air-cooled motor of four-and-a-half horse-power only, do not provide accommodation for any great quantity of stores, can be used as sledges only, and afford no special shelter to those aboard. Consequently the range of use should be more limited in the case of the French than of the British vehicles; but until accounts are received from Dr. Charcot it were premature to begin considering whether the smaller or the larger and more complete vehicles are the sort best adapted to the particular purpose.

The French Design.

The French-built motor sleighs are of a design that was arrived at as the result of a series of exhaustive trials on ice and snow in the Alps, in consequence of which the De Dion firm has taken out patents as well in Canada as in France. The driving-wheel has two rows of regularly-spaced ribs made of metal and fixed at an angle on the tread; on hard ice or snow they form an effective grip. When soft snow is encountered the space between the two treads is filled with frames over which cord or wire netting is stretched to prevent the wheel sinking too far into the snow, as well as to compress it so as to ensure effective propulsion. A two-speed gear is employed and it will be noticed that the driving-wheel is supported on a tubular frame wherein adjustment is provided for the stretch or wear of the chains.

Motor Sledges for Four.

This frame is attached at the rear-end only, the centres of its movement corresponding with the shaft carrying the chain driving the pinions, therefore the wheel is free to follow all irregularities of surface independent of those encountered by the runners. The steering-bar is supported on the column shown in front and works a turn-table to which the forward runners are attached. Four men can be accommodated on each sledge. Under the rear seat is a windlass so designed that it can be turned by hand or by a belt and pulley driven by the engine. All the mechanism is furnished with protection from underneath in the form of a shield, and otherwise by a bonnet. The precise range of use of these sledges independent of the rest of the paraphernalia of the party has not been made known, but it is anticipated that by their employment the services of dogs will be dispensed with, and there will be the saving of food for those animals, so that long journeys should be accomplished with less fatigue and with larger quantities of food, clothing, and other necessaries than has been possible hitherto on expeditions of this sort. In his projected Antarctic expedition Dr. William Bruce intends to make use of some small motor sledges.

H. Massac Buist.

AËRIAL·FLIGHT

Is the Time Ripe ?

There has been shown in London lately the dirigible balloon that has been built for the Wellman expedition to the North Pole. While admitting that the telegraphed testimony of Lieutenant Shackleton proves the possibility of employing the internal combustion engine in extremely cold temperatures, I must confess that personally I do not think the power balloon has been developed to a sufficient extent to render its employment for such purposes anything but exceedingly risky. Furthermore, it strikes me as somewhat peculiar that the main motive power at present shown consists of a large four-cylinder water-cooled eighty horse-power Dietrich engine placed across the frame, that has been hardened specially at that point. The intention being to journey from Spitzbergen to the North Pole and back, I cannot conceive why it has not been thought necessary to use an air-cooled motor, or to make very special provision against freezing. It is said that an eight-cylinder V-type motor may be employed, but even then there is no mention of air-cooling.

The Question of Cold.

The argument is that the cold is not excessive at the only time of the year at which the attempt could be made, therefore with a little precaution and the continuously warm atmosphere of the engine-room there should be no danger of cracked cylinders. On the other hand, the motor of Lieutenant Shackleton's car, and, indeed, all the steels used throughout it, were fashioned as the result of an exhaustive series of experiments by Sir William Beardmore's firm, undertaken with a view to ascertain precisely the sort of metal that would furnish the most satisfactory results under the conditions of rapidly varying temperature to be experienced. In regard to aerial motoring to the North Pole, one wonders why it is assumed that cold will not have to be very carefully guarded against especially as the vessel would be permanently employed at a considerable height. The notion of furnishing radiators for artificially cooling the cylinders by water certainly strikes one as being extraordinary in the case of any machine built with a view to travelling to the North Pole.

Hydrogen Versus Coal Gas.

The balloon portion of the vessel has been built by Messrs. Mallet, whose works near Paris I visited about six weeks ago. The envelope is not torpedo or cigar-shaped but rather blunt and thick. It is intended to be filled with hydrogen gas, which, though expensive, is preferable to coal gas for dirigibles on account of the extra lifting efficiency. Thus in the series of little dirigibles for one that I saw being built at the works in question for Comte de la Vaulx's syndicate, each balloon has a capacity of thirty-five thousand cubic feet only; whereas the average spherical balloon, to carry four passengers, when filled with coal gas is of fifty thousand feet capacity. And even so, it must be borne in mind that the

most efficient shape for a gas envelope as regards lifting is the spherical. Yet by the use of hydrogen gas the little torpedo-shaped dirigibles of thirty-five thousand feet capacity can carry one man plus a motor and frame weighing three hundred and seventy-four pounds. The "blunt" shape of the Wellman envelope has been exploited to ensure the maximum lifting efficiency possible.

An Interesting Contrivance.

The instance given of the relative efficiencies of hydrogen and of coal gas causes one of the arrangements of the Wellman airship to be particularly interesting. This is the contrivance whereby, on the assumption that the gas-retaining qualities of the envelope are all that can be desired, the excess of hydrogen, when the petrol supply is used up and the total weight of the airship is decreased, would not be allowed to escape into the atmosphere, but would pass through a special carburetter and be fed into the motor. M. Melvyn Vaniman claims that the mixture formed from hydrogen gas always gives better results than that formed from petrol. This was particularly noticeable when starting the engine from cold. On petrol gas it was sometimes needful to turn the crank-shaft for a very long while, whereas with hydrogen gas the motor could be made to run without any difficulty. Of course, there have been dangers to guard against in adopting the system. For instance, a back-fire might blow up the entire airship. Suitable stop-valves have been devised to reduce this danger to a minimum. Even should a gush of a flame get past the valves the fact that a burning mixture would not be available renders a resultant explosion unlikely.

Keeping the Envelope Rigid.

One of the great problems in the construction of a dirigible balloon is to keep the envelope rigid. In this connection it will be recalled that the early machines of M. Santos-Dumont suffered from "weak backs," so that they collapsed in the middle with exciting results. Indeed, other investigators were less fortunate than himself, one young Brazilian being killed in Paris in consequence of an envelope collapsing. Now, in the early days of ballooning one of the first lessons learned was that owing to changes of temperature causing the gas envelope to expand, a ready means of escape must always be available, so that the fabric of the envelope is never under undue pressure. Therefore, the open necks used in ordinary balloons were devised. But the necessity for keeping the shape of the envelope of a dirigible, wherein the weight cannot be carried in the perfectly evenly distributed fashion possible by the employment of a net over a sphere-shaped retainer, puts a tremendous strain on the fabric of a dirigible. The ordinary method is to keep air at a pressure in a "baloonet" furnished within the main gas-retaining envelope, the atmosphere being pumped in by the motor and automatically kept at the required pressure. M. Vaniman claims for his system that not only will the burning of hydrogen gas in the motor allow the airship to remain afloat for a much greater period of time than if petrol were the only fuel available, but there are possibilities of considerably augmenting the lifting qualities of a dirigible by pumping hot air instead of cold into the "baloonet," as the hydrogen gas is withdrawn from the main envelope and used as fuel for the motor.

H. Massac Buist.

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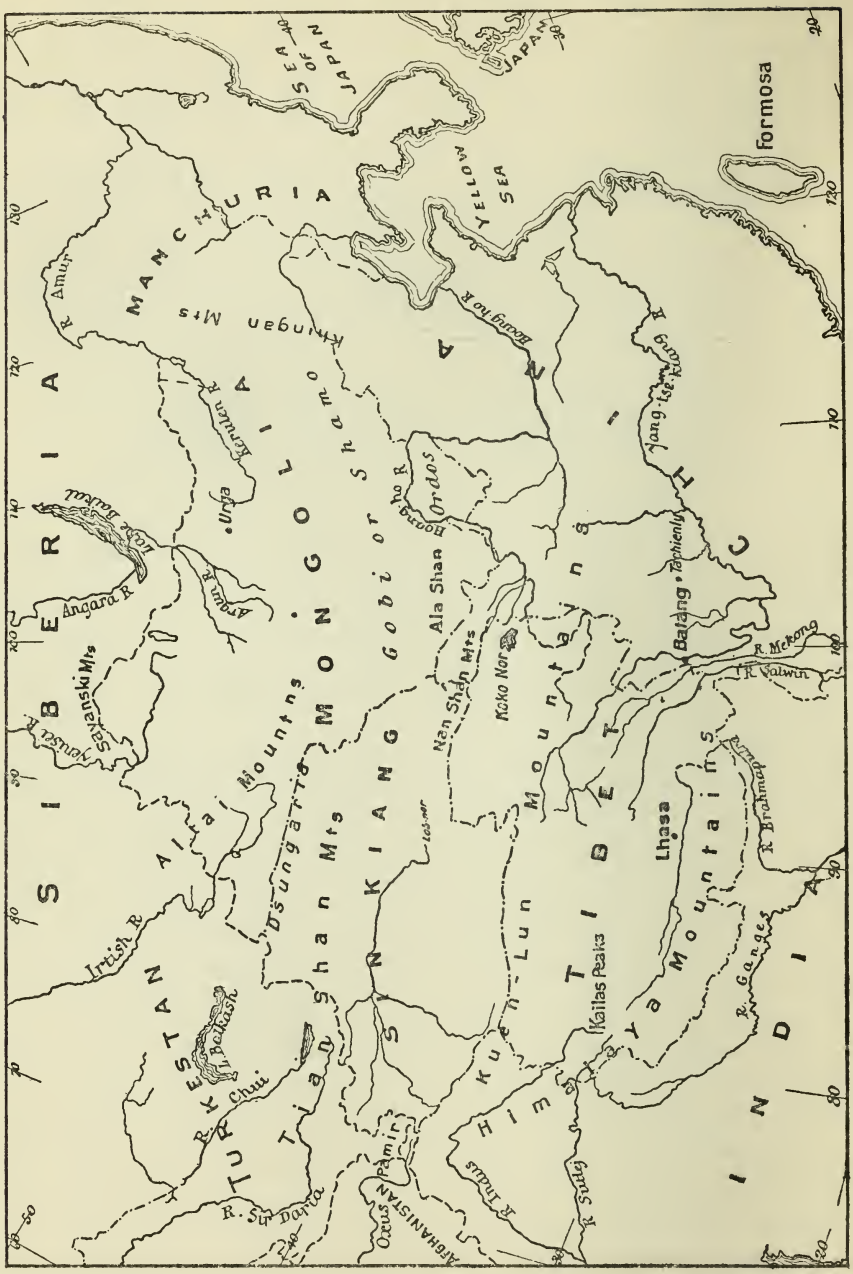
Unexplored Central Asia.

BY COL. SIR T. H. HOLDICH, K.C.M.G., K.C.I.E., C.B.

GEOGRAPHICAL exploration within the regions of Central Asia, in the sense of pioneer investigation, is a thing of the past—at any rate south of Siberia. All the main water partings have been traced; the sources of all the great rivers are generally known, although here and there it may be possible to revise our present map knowledge; and there is probably not a peak or a lake of importance remaining to be discovered and named.

Asia, indeed, has never ranked with Africa as a field for the explorer. Highways for the trade of the East to pass to the West have intersected the very heart of Asia since the days of Babylon. Pilgrims in search of enlightenment have crossed and recrossed the mountain network of the central regions by the hundred thousand for so many centuries that it may well be doubted whether trade or religion has had the larger share in planting tracks through Asiatic plains and passes. Wherever a modern traveller follows a recognised route in Asia he is only deepening a groove which has been scored across the face of the continent by the feet of millions of previous wayfarers. Some of these wayfarers have possessed intelligence and energy sufficient to leave a fair record for their successors; but it has remained for scholars of quite a modern era to make those records available for public study, and the geographical fog which settled down over Asiatic highways when the easier route from the West was established by sea has only lately lifted again. But it has lifted pretty completely, and since the first impetus was given to modern Central Asian exploration by Burnes in 1834, there have been so many explorers, both European and Asiatic, in the field that


SEA OF JAPAN
JAPAN
YELLOW SEA
Formosa
MANCHURIA
Amur R.
Khingan Mts
Hoang ho R.
Yang tse R.
Kerulen R.
Urga
Ordos
Ala Shan
Gobi or Shamo
Lake Baikal
Angara R.
Yenisei R.
Sayanski Mts
Altai Mounts
Nan Shan Mts
Koko Nor
Batang
Tachienlu
R. Mekong
R. Salwin
Lhasa
R. Brahmaputra
Kailas Peaks
Himalaya Mountains
R. Ganges
Kuen-Lun Mountains
Dsungarian Mts
Tian Shan Mts
Irtish R.
Lake Balkash
R. Ili
R. Chui
R. Sir Darya
Pamir
Oxus
R. Indus
R. Sutlej
SIBERIA
MONGOLIA
CHINA
TIBET
TURKESTAN
INDIA
AFGHANISTAN

with the story of the latest of them (Sven Hedin and Stein) it may be said that the book of Central Asian exploration has almost closed. Almost, but not quite. Here and there is still a blank space, conspicuous even in the smallest scale maps, which requires research of a purely geographical character to fill in the outlines; while of spaces more restricted, where topography rather than geography is in question, and where map delineation is to serve the ends of the antiquary and historian, there are more than enough to satisfy generations of travellers yet to come.

But we must divide the interests of these two classes of investigation. The means and methods of investigation are different, and the end to be attained requires a different class of investigator. It would be idle to point out the opportunities for work of a truly exploratory character apart from its associations of men and methods. Nor is it altogether wise to ignore the difficulties that have arisen from the gradual closing in of civilization and political influence. In order to reckon with the larger field of purely geographical adventure we must first shift ourselves to the east of the Pamirs and of the sources of the Oxus. There is nothing to the west of the Pamirs which can be usefully included in the Central Asian area still open to original research in the geographical sense. And even to the east that area is restricted to Mongolia, a small part of Tibet, and the western borderland of China. It is of no use now for the geographical explorer to turn his eyes further northward than the accepted line of the Russian frontier. From the Oxus sources and the Tian Shan mountains on the west to the Khingan range on the east, Russian explorers have been busy for the last fifty years. The Russians are perhaps the most progressive and the most scientific explorers in the world; and they have at their backs a basis of exact measurement in the Russian geodetic surveys which is unsurpassed in extent and accuracy. Not only do they know their own borderland in Central Asia, but they have spared no effort to obtain an exact geographical knowledge of all that lies beyond it, so that even in such map spaces as we are able to point out as requiring careful exploration, it is more than probable that Russian enterprise has already been busy.

At the same time a free interchange of purely geographical information has marked our relations with Russia for many years, and we may flatter ourselves that we know the position of their map knowledge of Central Asia, broadly, up to a comparatively recent date. We know enough at any rate to leave no room for speculation as to what lies north of the Russian frontier. South of it we may accept Mongolia, especially the central and eastern districts of that vast dependency of China, as still offering an opening (although perhaps not an inviting one) to the geographical discoverer. North-western Mongolia, which includes the high-level plateau between the Ektag Altai, separating it from the Dzungarian

depression, and the Sayan or Sayanski mountains of the Russian border on the north-east, has been the happy hunting ground of a well-known group of Russian explorers during the last quarter of the last century. Its character as a huge uplift (analagous to that of Tibet), with true border ranges bounding it on all sides, has been fully established already, and its topography is fairly well ascertained. The same may be said of south-eastern Mongolia, which lies on the Chinese (or eastern) side of the great Khingan range. It is far too closely associated with Manchurian interests and Russian railways not to have become the prey of the Russian explorer long ago.

There remains, then, the great central depression of the Gobi and the mountain ridges, or ranges, south of the Lamaistic centre Urga, although even here the trail of the Russian explorer is to be found. From Urga to Pekin there runs what is called on some maps a Russian post-road very nearly directly south-east, with a variant route which, striking southward from Urga, joins the first track close to the Chinese frontier. It seems probable that this latter route is in part the pilgrim road which connects Urga with Lhasa, and it was by this line of communication probably that the Dalai Lama made his exit from Lhasa during the late troubles in Tibet. Within the last twenty years Mongolia, even Central Mongolia, has been crossed and recrossed in several directions. The old faith in the Gobi desert as an ancient sea-bottom has been much disturbed ; and we hear now of rolling plains, occasionally flat, but everywhere presenting a hard surface of gravel, with rough rock-strewn ridges breaking through, like islands in a sea. The Kentei range to the north-west, forming the escarpment of the higher terrace of north-western Mongolia, and the high, dry uplands of Beishan, from two thousand to four thousand feet high, stretching from the Nan Shan border mountains of Tibet to the eastern spurs of the Tian Shan, together with the Gobi, all want further exploitation. The trough or depression of Gobi is said to extend through the lower Mongolian terrace or plateau for more than one thousand miles from south-west to north-east, and to be from four to five hundred miles across at its widest. It forms the world-old barrier between north and south and offers space enough and to spare for further examination by the geographical explorer, quite apart from the interest which it may contain to the antiquarian and geologist. Mr. C. W. Campbell has already called attention to the Mongolian field of antiquarian research.

Of the south-eastern skirts of Mongolia, bordering China, we have heard a good deal lately from travellers who have passed from China westward either to Turkestan or to Tibet ; but there is room even here for much improved geography in the Ordos and the Ala Shan. A little better information than we now possess as to where Mongolia ends and

A Felt Tent, Mongolia.

A Mongol in his Tent.

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China, or Tibet, begins would be exceedingly welcome to the geographical map-maker. Unfortunately, the physical characteristics of these remnants of Central Asian geography are not of a nature which offers much attraction to the explorer, unless, like Mr. Elsworth Huntington, he is a keen student of those gradual and intermittent processes of Nature which lead to climatic changes and profoundly affect the economic conditions of Asiatic humanity.

If, however, we turn from the distribution of land surface, its mountain systems and river basins, to the antiquarian interests which now lie hidden beneath the soil of Central Asia, there is perhaps no field in the whole world more promising for the solution of certain ancient riddles of those human tides which have ebbed and flowed from this Mongolian cradle of the human race, and have spread far beyond the uttermost border of the Asiatic continent. Under what climatic or physical conditions were these hosts of migratory men-locusts born and bred? Where were their hives or centres of population, and was it the gradual failure of means of existence in their overcrowded valleys, or the lust of conquest, or loot, which sent their innumerable hordes to find pasture lands and settlements so far afield? The lines of inquiry here indicated may not appear to be strictly geographical, but it is the business of the geographer to trace to its source not only the movements of great rivers and of oceans but those of humanity as well, none the less that the latter phase of geographical research appeals to an interest which is almost as much personal as national.

In later ages of Mongolian domination there must have been a gathering of the clans and tribes around certain centres which were not always of the experimental nature of a nomadic camp. The valleys of Kerulun and Argun, from whence it is said that the Mongols sprung, must surely possess hidden evidence of the early beginnings of these savage conquerors; and we know that the capital of the Great Kakhan Mangu (Erdeni-Tsu, or Karakoram) was distinguished by a palace the like of which, it is said, has never been seen again. Here it was that an angel on the top of a silver tree announced by a trumpet blast that the reservoirs of "wine, kumiss, hydromel, and terasine" were running low in the palmy days of Mongol revelry. Sighnak, too, the ancient capital of the Kazaks, wants searching out. There is, indeed, a fine opportunity here for the geographer who is possessed of the spirit of antiquarian research.

From Mongolia it is but a geographical step to Tibet. It is becoming a little difficult to find, even in Tibet, a field which offers a really satisfactory scope to the geographical explorer. For the surface of Tibet would present the appearance of an elaborate spider's web were the tracks and trails of all the explorers who have visited that country within the last half-century traced out upon it. For a long time, since the Pundit

Nain Sing first bent his steps from the west to Lhasa, there remained a very considerable and important gap to the north and east of the sacred peak of Kailas, which was a blank in our maps. Other and even wider blanks existed in the centre and north of the great plateau, but the peculiar significance of the white space about Kailas lay in the fact that therein might be found sources of the Indus of which we were not aware, and that somewhere through that space was to be traced the true Trans-Himalayan water parting of India, which was coincident with the northern lip of the Indus and Brahmaputra basins. How much of this has now to be revealed to us by Dr. Sven Hedin we have yet to learn, but he claims to be able to place this divide with certainty, and confirms the opinion which has long been held by Indian geographers, that it would be found almost within sight of the Brahmaputra. Whether, as it reaches out westward, it becomes more of the ideal continuous range carved into deep-set waterways and spurs by climatic action, or whether it is to be found in the midst of a tangled system of minor ridges and folds enclosing narrow valleys and frequent lakes, has also to be made known. But, with this final proof of the orderly sequence of Himalayan formation transferred to Tibet, which forms the basis of the whole mountain system, we have really but little to learn of the plateau conformation of central and northern Tibet. Geography here is but collective topography, and topography can only be secured with expense of time and patience.

In eastern Tibet, however, we still find room for a geographical explorer, and still possess one geographical nut which will involve some enterprise and ability in the cracking. From the Koko Nor on the north-east, the gateway of the Mongolian pilgrim into Tibet, southward through the rugged mountain wilderness to Batang and the road which marks the eastern entrance viâ Tachienlu, through six degrees of latitude there is a most interesting region for the mountaineer and map-maker. It is traversed by the upper waters of the two greatest Asiatic rivers, the Hoang Ho and the Yang-tse-Kiang, surrounded by stupendous mountains reaching out from the Tibetan plateau eastwards into China. The valleys intersecting these magnificent hills are comparatively low and free from the rigorous climatic conditions of Tibet generally. Their vegetation is magnificent, and there must be, hidden in the folds of the foothills, thousands of thriving villages of which we know nothing at all.

It is, in short, the Tibeto-Chinese borderland that cries for the geographical explorer more than any part of Central Asia. To the south-west of this district and west of Batang we can still point to an utterly unexplored corner of Tibetan geography. Here there culminates a snow-peaked divide which parts the Brahmaputra from the upper sources of the Salwin and the Mekong ere they follow the narrow ditch-like troughs

Camels Bathing in Dalai Nor.

A Pilgrim to Urga.

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which carry them sweeping down in long curves to Burma. Hardly has the eye of any traveller rested on the snow peaks of this stupendous group. Forrest has seen them from the upper Salwin, but there is no other record. Under the shadow of them on the south-west are the two Tibetan districts of Payul and Zayul. We have heard much about these districts from the hearsay reports collected by native explorers, but we really know nothing except that their drainage finds its way into the Brahmaputra just at that part of its course which no European has yet followed. This is still the great problem of Tibet. The watershed of India marked out by Sven Hedin is a splendid accession to our geographical knowledge, but the mapping of the deep gorges and magnificent falls of the Brahmaputra between the plateau and the plains would be a yet greater achievement, and they are still left for future exploration. There is still the problem of communication between the Indian frontier and eastern Tibet by the Brahmaputra route to be solved. Possibly there is no solution and no possible route, but until our geographers have compassed this field of research there is no other problem in Asia which is of such paramount interest.

Here, however, the comparatively limited regions open to geographical exploration in Central Asia seem to end, and the seeker after geographical truth must in future content himself with restricted areas and those patient processes of scientific illustration in dealing with regional conformation which demand a knowledge of the art of topography. Opportunity for accurate and scientific geographical surveying exist in every part of Asia to which the systematic surveys of India and of Russia have not yet reached. By far the most important of these unmapped areas lies within the boundaries of the Afghan kingdom, where there is still a considerable and most important central area of Afghanistan as yet untouched. It includes much of the Hazara highlands and the plains stretching between Ghazni and the frontier hills, and there are smaller areas, irregularly spaced, scattered throughout the trans-frontier districts of India. These, like the earlier Tibet surveys, can only be left to opportunity and government support. They lie within the sphere of action of the Survey of India Staff, and are practically closed to the unofficial traveller.

But, beyond, there are opportunities too numerous to be systematically dealt with in a short article for the prosecution of those stirring methods of scientific research which have made the names of Stein and Elsworth Huntington famous. The value of such work as Stein's is greatly enhanced by the excellent topographical mapping which illustrates it, and it will soon be a recognised rule of scientific travel that such illustrations are a necessity. The old order is rapidly changing, and the old methods of compass bearings and distances and a confused mass of notes to assist the memory in evolving some sort of a map long after the

impressions of landscape have passed away, is happily dying a natural and inevitable death. It may be said that a topographer, like the poet, is born, not made, and that under the most advantageous conditions the art of topography can only be acquired by patient and continued practice. For this reason, doubtless, many great explorers in Asia have recognised the impossibility of carrying out their own topographical illustrations of the country they explored and have appealed for professional artists to the Survey Department in India ; and these explorers have given us the very best results.

There is no comparison whatever between such mapping as we get from Deasy, Stein, or Rawling, for instance, and that of others who have trusted to their memories for their mapping, and worked from an overcrowded field book. To put it shortly, every scientific explorer nowadays should either be a plane-tabler himself or should have a well-trained plane-tabler with him. The latter arrangement is perhaps the best, for no leader of a party can possibly spare the time to do justice to his plane-table. The difference between the old method and the new is the difference between an artist who should attempt to depict landscape from memory after many months have passed and one who sits down and paints what he actually sees. In the first case there is an unfortunate tendency to depict what the artist thinks he ought to have seen and to evolve an ideal landscape.

Yet travellers can and do learn the art of topography and practise it for themselves with great success. No better illustration of these remarks can be found than that contained in the Royal Geographical Society's *Journal* for last December, where we have a plane-table sketch by Mr. Fergusson on one map sheet and a "sketch" map (evidently not a plane-table sketch) on the next. They are both sketches, but what a difference in the value of the scientific information which they convey ! The first is a living representation of mountain features. One could make geological deductions from it ! The other may be interesting, but it is not instructive.

The illustrations are from photographs taken by Mr. C. W. Campbell, C.M.G., of the Chinese Consular Service, who presented a most valuable series of illustrations of Mongolian life and landscape to the Royal Geographical Society.

Constantinople.

By Captain F. H. SHAW.

A narrow stretch of water, kissed by the sun into a million laughing gilded ripples, spanned by two huge bridges of boats, dotted here, there and everywhere with flying caiques, hemmed in by rising ground, on which stand sumptuous edifices, a bewildering chaos of gilded domes and needle-like minarets, from which come the sonorous cries of the muezzins calling the faithful to prayers—such is the Golden Horn, famed in history, the gateway to Constantinople.

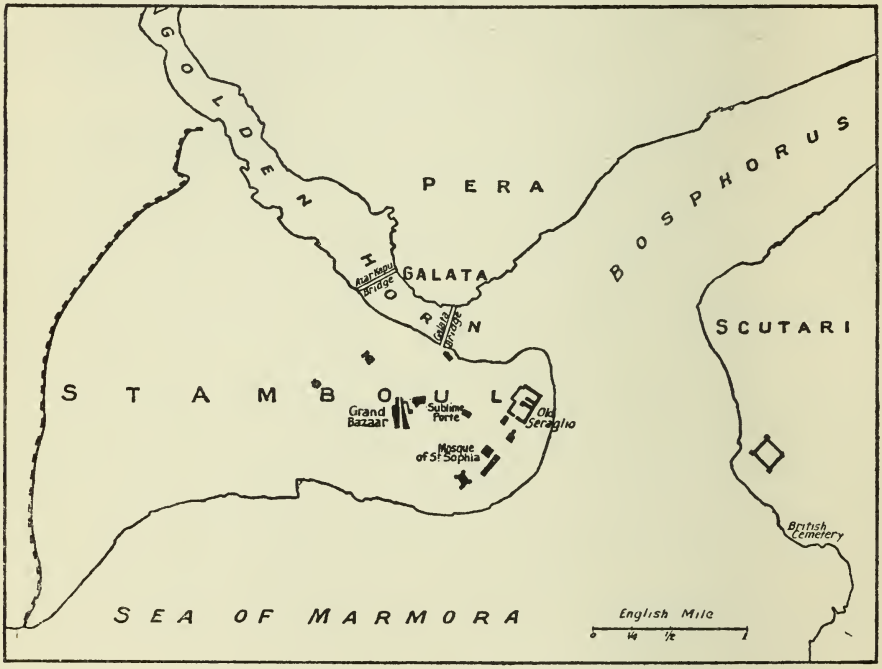
It is hard to realise, as your steamer comes to anchor within touching distance almost of the Galata Bridge, that the strange medley of buildings ashore—tiny, humble houses rubbing shoulders with statuesque palaces, with the ever-present minarets towering skywards like chimney stacks in a Yorkshire manufacturing town—is Constantinople, where some of the bitterest wars of history have been waged, where Christianity flourished strong-blooded, only to be deposed and annihilated by the power of the Crescent and its followers. But it is Constantinople, a city teeming with interest, teeming with curious sights, and—which fact is more conspicuous than aught else—teeming with mongrel dogs and filth.

From where your steamer lies, and before the yelling boatmen take you ashore, you can secure a very good idea of the lie of this weird city. That tongue of land to your left forms the foundation for the old city of Stamboul, and on the extreme point of it, a huge building with a curious Corinthian front represents the old Seraglio, where the old-time Sultans held their courts. Close behind it rise the turrets, domes and minarets of a great cathedral tower; to its left, again, extends a still more imposing edifice, equally turreted, domed and minareted, the new Seraglio; and an imposing marble gate leading to the grounds of this vast palace is the Sublime Porte, from which the Turkish Government takes its name. Here occurred, during the recent troubles, that exodus of veiled women who had once basked in a monarch's favour; now they are exiles, their fates enveloped in grim uncertainty.

On the other side of the Golden Horn lies the suburb of Galata, a steep hill, terraced along its fronts with houses and shops, all glowing white in the sunlight which blesses Constantinople beyond its deserts. Away astern of you across the Bosphorous is Scutari, a place not without interest to Britons, for it was here that Florence Nightingale made her name and the name of womanhood famous. These three cities, Stamboul,

Galata, and Scutari, together with another, Pera, hardly visible from where you lie, make up Constantinople proper; a vast chaos of white-washed houses, unpainted walls, wooden houses boasting no paint or varnish, shingle roofs and a few of tiles, a dotting of domes and towers, and, of course, the ever-present minarets.

Having taken a bird's-eye view of the city—and it is doubtful whether there is another place in all the world where so much can be seen from one spot—you make your way shorewards. It is a difficult matter to obtain a boatman—not from scarcity, but from too plentiful numbers



being present. At length one boatman grasps the situation and your baggage at the same time, shoulders his way through the thronging crowds on the gangway, and bears you, *vi et armis*, to his ugly, half-seaworthy boat, in which you are pulled ashore to the accompaniment of whole chapters of revilings from those who have not secured your custom. You are stopped in midstream by a policeman seated in a canoe, who counts you and your companions carefully, and also your baggage. No one seems to know why this is done—it is merely a custom of the country, without rhyme or reason.

Your first acquaintanceship with a Turkish custom-house is not a

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The Mosque of Saint Sophia.

favourable one. Yet you must pass through it. You accompany your effects from the landing-place to a fearful structure, dilapidated, unpainted, generally decaying, a wooden building which is the custom-house of Constantinople. Here everything is arranged on long wooden tables and benches, but it is as well to remember that there are more ways of getting your personal belongings through the customs than by the simple process of paying duty. All Turkish customs officials can—or could—be bought, from the highest down to the lowest, and if you are wise you will instruct your dragoman or guide to do the necessary work that will cause you a minimum of annoyance and trouble. It is another custom of the country, this bribery, and you will meet it wheresoever you may chance to go. It is cheaper in the long run, perhaps, for the Turkish officials are self-supporting; that is, their salaries are uncertain quantities, and so they usually tack on a certain sum to the recognised duty for their own profit. If you pay them that sum in the beginning, they ignore the duty, and you are passed through without the annoyance of grimy fingers probing in amongst your most cherished possessions.

Once this customs business is transacted you are—always providing that you are supplied with a passport from your own Minister—free of Constantinople. And yet your first feeling on entering the city is one of keen disappointment. Where is the sumptuous colouring, the lavish profuseness of decoration; where is the air of duplicity and mystery, which you have been taught to recognise as an essential of the place? None of these things is visible; your attention is chiefly taken up with the grime and squalor, the filth and profanity, the unimaginable poverty. There are no wide open spaces for the people to breathe in, there are no places of public resort, no theatres, no concert halls. And vehicular traffic, which gives life to a city, is almost entirely absent. The streets of Constantinople do not favour heavy traffic; these streets are mere flights of steps or narrow, dirty lanes, reaching upwards at sharp slants, winding in heart-breaking zigzags, and packed full of greatly burdened porters, carrying mountains of merchandise on their bowed shoulders, whilst under your feet in every direction loll and sleep the pestiferous dogs—mongrels unconfessed, flea-ridden, mangy, masterless ruffians of dogdom. You tread on them, they barely move; you kick them, and if you are observed by a pious Mussulman, you are at once stoned cruelly, for these dogs are to a certain extent sacred animals, and take advantage of their sanctity to the full. Dogs everywhere—skirmishing in amidst the heaps of offal, groping slobbishly around the shop doors; and the freemasonry of these brutes is so wonderful that let but a single dog belonging to one street venture into another, and he is set upon by the combined garrison and torn to pieces. You see such

a sight as you advance; it is not pleasant, but no one interferes, the policemen least of all—for they are mostly asleep.

There are practically no carts, but numberless little donkeys, each one staggering under a tremendous load, bear the city's merchandise to and fro. The great burden carriers, however, are men, and you see these fellows tackling loads which would affright the stoutest horse. Eight, ten, or sixteen men as a rule go to the making up of a party, and on long poles slung from their shoulders they lay masses of stuff that seem to tower as high as the houses on every hand. No two parties of men can pass one another in the narrow ways; and the lot of the simple pedestrian is hard, for sidewalks are conspicuous by their absence, and it is a choice between being brushed off into the gutter or driven bodily through some merchant's window near by, if any of these porters should happen your way. But still all this, while taking from the city's prosperity, adds considerably to its picturesqueness—that is, of course, if you are sufficient of an artist to overlook the omnipresent filth which abounds wherever you look.

Turkish architecture, from the outside, is not lovely. Most of Constantinople is built of unpainted wood, with gaudy fripperies of balconies and the like stuck on higgledy-piggledy, without plan or method of any kind. Very seldom indeed do you see anything at all in keeping with the fame of the city. There are few Moorish or Oriental buildings; all is sordid and unlovely, poor, dilapidated, cheap.

Of course there is a reason for all this seeming poverty, much of which is of a surface character only. Formerly, whatever may be the case under the new *régime*, if a man displayed evidences of wealth he was at once seized upon by greedy tax-collectors, who were compelled, as the price of their position, to extract vast sums from those subject to their demands. Let any man give his house a new coat of paint and it was at once assumed that he had come into a fortune, and the tax-gatherers demanded a certain proportion of that fortune for their own ends. Only one tithe of what was paid went into the State coffers, the rest was used in keeping the collector and his swarming relatives. Bribery and corruption have always flourished exceedingly in the city of the Grand Turk. Therefore the average resident studies a crude simplicity in his outdoor life, and thus manages to escape a certain percentage of the cruel extortion.

But as you progress you forget the poverty of your surroundings in the marvellous sights you witness among the people. Constantinople boasts of being the most cosmopolitan city in the world; and as you watch the swirling streams of humanity you find it easily possible to believe the assertion. They will tell you that there are representatives of every country under the sun present here, and that every known

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405] The Mosque of Saint Sophia. Part of the Interior.

language is spoken within the city's precincts. Scarcely a shop but has its sign painted in a dozen languages, and you see some curious perversions of your native British tongue if your eyes are keen. Naturally in such a mixture of races there is little cohesion. All these myriads are at hidden war one with another. There is nothing to bind them together ; bonds of common interest are unknown. The law of the place is "cheat lest you be cheated," and in this respect at all events the citizens of Constantinople are a law-abiding people. Over all there hangs an intangible feeling of dread and danger—no man seems to trust even his blood-brother. How far the cloud will lift under the new order of things remains to be seen.

Perhaps the best spot in all Constantinople from which to witness the cosmopolitan nature of its crowds is the Galata Bridge across the Golden Horn, one of two bridges over which flock a million people daily. This bridge is nothing to boast of either architecturally or from an engineering point of view. It is simply a string of pontoons or boats, with planking laid across to form a roadway. This arrangement has served the men of Turkey for many a day, and they are loth to break loose from old customs. But if the bridge itself be uninteresting, what of the people ? Here you have the universal highway of the city, and the picturesque crowds, the donkeys, the horsemen, the sedan-chairs, go to make up a shifting scene the like of which cannot be rivalled the wide world over. Veiled women flit by you, telling of secrecy and the intrigues of harem life, and you try to conjure up visions of witching houris. But it is hard to imagine any great beauty lying underneath the hideous veils and the shapeless cloaks ; and therein your Turk achieves his object. His one idea is to make his women—in the open—as unattractive as possible, and verily he succeeds. Animated flour bags would present greater graces of carriage and mien.

Only the Turkish women, however, be it noted, are veiled. Yonder you may see, picking their way daintily among the whining beggars, the grunting donkeys, the slobbering dogs, women whose faces are bare—Armenians, Greeks, and Jewesses, but not a single Turk. And, being a stranger, it is as well that you should remember that to assist a fallen woman in Constantinople, supposing she be veiled, is a thing to be avoided. No matter that she has fallen in a stream of mud, no matter that she is weighted down with parcels ; though your chivalry is up in arms, let her lie, for the first sign of assistance will be the signal for a mob of insulted Mussulmen to precipitate themselves upon you, to your severe disturbance of mind. To touch a veiled woman is an insult to a Turk as a man.

Pedlars by the hundred line each side of this great bridge. Their voices are not melodious, and if you refuse to purchase the goods that are

held under your very nose, you are subjected to vile torrents of abuse ; mud is often thrown, for you are a foreigner, an outcast, and consequently unclean. In and among the pedlars are the beggars, who swarm all over Turkey, and to describe the nature of some of their deformities and afflictions would be too gruesome for print. They whine everywhere, they implore, they abuse, and you feel strange qualms of conscience at the sight of them, until you reflect that many of them have undergone painful operations, and allowed limbs to be deformed and amputated simply as a means of securing an entry to a lucrative profession. Remembering this you forget your pity, and become mainly conscious of disgust.

Here are priests of the Mohammedan faith ; you can easily distinguish them by the white wrapping about their quaint caps. Those men striding along, looking neither to right nor left are Persians, to be distinguished by their high black caps of astrakan or lamb's wool. Yonder is a Greek, clad in the picturesque national costume, now, alas, fast dying out, of starched white petticoats to the knee, white shirt sleeves, gaily embroidered vest and jacket, the sleeves of the latter cut away and flowing, that due display may be made of the starched linen beneath. Those men there in long caftans, reaching blackly to their heels, are dervishes. Priests are everywhere, and next to the soldiers seem to be the prevailing figures in the throng. When you reflect that in Constantinople there are at least eight hundred mosques devoted to the Mohammedan faith, there is hardly need to wonder at the numbers of their servants.

You must walk warily here as elsewhere, for mounted officers ride recklessly across the bridge, paying no heed to jostled, and often injured, foot-passengers. Then there are the ever-present donkeys and porters, to say nothing of the carriages of high-born ladies, each one attended by a mounted eunuch, who rides arrogantly, defying ordinary mortals to impede his mistress's way. It is a wonderful place this Galata Bridge, for it is at once a market—from the pedlars you can buy anything practically from a cradle to a tombstone—a promenade and a high road for the general traffic of the city. But after awhile the sheer confusion of numbers and colouring jars on you, and you find yourself seeking some modicum of quiet in the less-frequented streets.

It is not long, however, till you reach the bazaars of Stamboul, the most interesting region, so most people will tell you, in Constantinople. Vast numbers of tiny shops—mere hutches or cupboards, most of them—line the narrow streets on both sides. They have neither windows nor doors ; the entire front is wide open to the observer, and at night a shutter is put up over the whole. The stock is stored on shelves running around the interior, and here you have material to engross your attention for

days. In one corner are silk shawls, marvels of craftmanship, each of which may be passed through a wedding ring, though opening out to the size of a miniature carpet; in another, pile on pile of red fezzes, the national head-dress. The merchant sits cross-legged in front of his establishment, and surveys you languidly at first, but watch him as you draw nearer and evince interest in any article of his stock. He fixes you with an eagle eye, and points a not too clean finger at you. "In the name of the prophet, buy!" he says, and mentions a price which would suffice to buy the same thing three times over in London. If you are versed in the customs of the country you will at once offer a price one-tenth of what he asks, and then work up towards him as he works down, eventually striking a compromise at somewhere near the article's real value. If he refuses to sell at your own price, walk away determinedly. In less than a minute by the clock he will be after you, offering the goods at your own figure.

It is hard work to drag oneself away from the displays here. Many of the booths glitter with diamonds and precious stones wrought into cunning jewellery. Ivory and mother-of-pearl, exquisitely carved; embroidered slippers, gold-laced jackets, Persian shawls, Indian shawls, worked leather, rare brocades, Armenian cushions and table covers, hammered copper, engraved brass—what would you have? It is here to your hand, a veritable *embarras de richesse.* If you accept the offered price for anything the dealer will be disappointed; he would rather sell at cost price than lose the opportunity of haggling, which is as his own life's blood to his heart.

Here you come across an auction room, and you are at once bewildered by the babel of tongues that arises. Everybody yells at once and at his loudest; not only do the bidders cry their bids, but the onlookers repeat them time after time for sheer devilment, and the mystery is that the auctioneer—himself purple in the face from much shouting—can distinguish buyers from lookers on. Yes, it is an experience to watch a Turkish auction sale, but it is a veritable purgatory to attend as a buyer. It is not unknown for an auctioneer to stop a sale whilst one of his bidders is saying his prayers—for the Turks pray wherever they happen to be, if the cry of the muezzin should be heard. But some of the Turkey carpets offered for sale at these auction rooms are such as to make you drip with envious longings, and, taking them all round, the prices are not exorbitant, though, of course, there is a substantial duty levied on every carpet taken out of the country.

Passing out of the bazaars, you run foul—literally run foul—of a fire brigade on its way to a fire. No motor steam engines here, no noble horses clearing a red-nostrilled way through the flung-back crowds. A few men have a hand-engine upon their shoulders, an engine capable

of throwing water at least as far and fast as a penny squirt. They amble along in white drawers and thin shirts, and occasionally stop to pass the time of day with onlookers. News has come from one of the many watch-towers which are erected to convey quick warnings of an outbreak, and the various fire brigades are off to the spot. It is almost ludicrous, when you think that seven-eighths of Constantinople is built of wood as dry as tinder. But that is how matters hold in the city of the Grand Turk. The captain of the fire brigade marches proudly along beside the engine, bearing in his hand the nozzle of the hose, which hose is being carried by other helpers, while his own bull-throated yell rings sonorously through the narrow lanes—"Yangin Var! Yangin Var!"

Arrived at the scene of the outbreak, the brigade at once commences haggling with the owner of the burning property. This is another curious feature; the brigades—there are many of them—are not municipally controlled, but are self-supporting, and the three or four different companies that have arrived on the scene are prone to underbid one another in order to secure the job. All the time the fire blazes merrily, and depredatory pillagers loot here and there with consummate impudence. But it is recognised in Constantinople that if a man's house takes fire it is merely a punishment for his sins, and the firemen do not unduly exert themselves even when they have secured the appointment of extinguishers in ordinary.

Now you feel it is time to seek for some architectural beauties, and so make your way from the thick press of the bazaars towards the higher altitudes. Each eminence in Constantinople holds a mosque, and their name is legion. Near each mosque, occupying the same position to the church as do our own church spires, are the ubiquitous minarets: exquisite structures most of them, of delicate marbles, three hundred feet high, tapering elegantly from a diameter of some twenty feet to a needle point, which point is surmounted by the Crescent. Up the delicate shaft are balconies, sometimes one, sometimes two, even three, where the muezzin takes his stand at appointed hours, and, lifting up his voice in exhortation, beseeches all hearers to pray. "There is no god but God; Mahomet is the prophet of God; prayer is better than sleep!" the voice rings out clarionwise, and the Turk, hearing, falls on his knees where he stands, turns his face Mecca-wards, and whispers the few prayers needful for the occasion—generally a monotonous repetition of the cry of the faith: "There is no god but God; Mahomet is the prophet of God!"

The mosque of Saint Sophia, which is supposed to surpass Solomon's Temple in grandeur, is outwardly a very disappointing structure indeed. There seems no striving after architectural effect. Towers and domes, blank walls and gates, are thrown here and there in disorderly confusion,

and the whole rambling structure is painted—yes, painted !—a ghastly yellow colour, intersected by broad black stripes. The mind floats ruminatively between the skin of a zebra and the attire of a convict. Inside there is a vast change. The great simplicity of the building is perhaps its chiefest charm. Yet it is a studied simplicity, for pure perfection of line and form is the prevailing note all through the huge church. The mosaics upon the walls and ceilings are veritable wonders of colour and design, and the graceful arches, combined with the delicate golden yellow of the walls, make up a vista of supreme grandeur that no mere words can adequately describe.

You have doffed your shoes before entering, naturally, and as you stand gazing at the altar and the pulpit, enters a priest of the Faith who ascends the rostrum, bearing in his hand not only the Koran but a drawn sword ! The unscabbarded steel in a place of worship is incongruous to your eyes, but you find later that it is, like most ecclesiastical forms and ceremonies, symbolical. St. Sophia was taken by force of arms from the Christians, hence the sword. You tread almost ankle-deep in perfect Turkish rugs which are spread over the entire flooring ; and as you stand in the sounding magnificence of the mosque you have much time to contemplate the wonderful history of the edifice. Look up at that strange red mark on one of the pillars in the nave, a mark suggestive of a bloody hand. On the day the Christian garrison of Constantinople was overwrought and delivered into the hands of the conqueror, Mohammed II. rode his horse into the mosque over a carpet of massacred Christians—they killed all who would not recant—and his horse slipping, he put out one sanguinary fist to steady himself. That is the mark, or so your dragomen will tell you.

But if the exterior of St. Sophia is not gratifying to artistic eyes, the same cannot be said of some of the other mosques, nor yet of the palaces which abound in the various parts of the city. One is an enormous mass of glittering marbles, all the colours of the rainbow shining translucently from the structure. Its gates are masterpieces of cunning ; its gardens are lovely to behold. But the palace of Beyler Bey, carved and enscrolled, gilded and mosaiced, one weltering mass outwardly of beauty, inwardly a vast museum of mirrors and crystal, of marvellous frescoes and priceless tapestries, of such carpets as the eyes of kings seldom see, of gilded furniture and divans, of silk tapestry, is far and away the most sumptuous of the many sumptuous dwellings of his Imperial Majesty the Sultan of Turkey.

Perhaps the most wonderful of the many wonders is the huge crystal staircase—a novelty which forms one of the principal attractions of still another palace, the Dolma Baghtcheh. The commonest utensils of the toilet here are made of alabaster ; onyx and porphyry are used in

lieu of common stone. It is all very bewildering, all very wonderful, all very prodigal, but the simple fact is you feel overwhelmed after one look, and satiety takes the place of interest. Such reckless expenditure, such lavish display, tend to make the mind sicken.

The Seraglio is a necessary sight of Constantinople, one that you dare not miss. Everybody knows nowadays that the Seraglio is not a vast prison for secluding the women of the Sultan's entourage. It is in fact a collection of buildings, surrounded by a vast wall; and it is, without exception, the most historical part of Constantinople. Romans and Phœnicians have traded here, Crusaders have stalked in all the panoply of war down its resounding corridors; the Genoese and Venetian adventurers came in their numbers, and left bearing pillage worth untold millions. Richard Lion Heart made his headquarters here, and, sinister fame! twenty-two Sultans have died by poison or steel within its walls. There is, in the large forecourt, a tree known as the Tree of the Janissaries, supposed to be the biggest tree in the world, and under this tree that semi-feudal organisation of the Janissaries, more powerful than Sultan or people, hatched their plots and executed those who had come under their displeasure.

There is the Hall of the Holy Garment, too—a spot not to be desecrated by Christian eyes—where repose the mantle of the Prophet, his staff, his sword, his holy standard and—last not least—two hairs from his beard. There are whole worlds of curious buildings within the Seraglio, but you have not time to examine them all. Neither have you time to explore the Treasury of the Ottoman Empire, where barbaric treasures of unknown value lie under close guard. It is just as well, perhaps, that your eyes should not be dazzled by the huge bowlsful of emeralds and rubies, by the solid gold throne encrusted so thickly with diamonds, rubies, emeralds, and the like, that not one inch of the original metal is visible. Lately these treasures have been brought to the light of day, and have astounded all who beheld them, not only by reason of their stupendous worth, but as an example of a monarch's cupidity and greed. Perhaps a newer *régime* might see these riches used freely in place of their wonted idleness, to ameliorate the unclean conditions of what might be, with proper treatment, a beauty spot on earth's surface.

There are many thousand of interesting spots in Constantinople, if you care to explore them. But when you leave, and cast your mind back on the city, you find yourself confronted in the main by a picture of domes and minarets, of tiny booths and horrible cripples, of squalor, filth, and—most pronounced of all your memories—the ubiquitous, mangy, wholly unpleasant dogs.

Herr Dernburg's Tour in South Africa.

By Dr. OSCAR BONGARD.

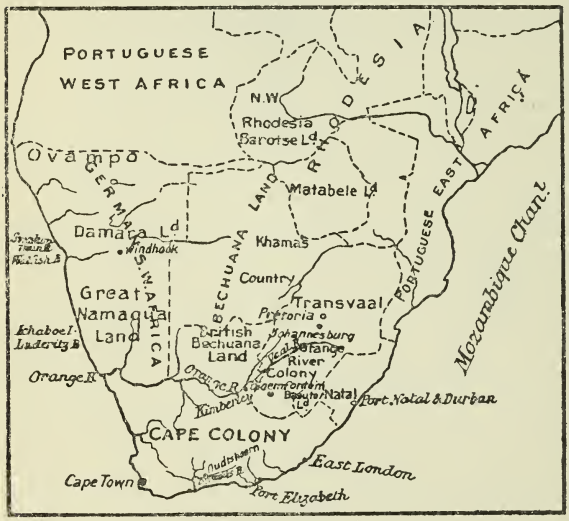
When Herr Bernhard Dernburg, the German Secretary of State for the Colonies, assumed office two and a-half years ago, he determined to take the first opportunity of visiting the various territories placed in his charge, feeling it to be essential that he should have some personal knowledge of colonial conditions if he was to guide the development of German colonial policy along sound lines. In pursuit of this plan, he made a tour through German East Africa in the summer and autumn of 1907, and in the summer of last year carried out an extensive journey in British South Africa and German South-West Africa.

Though perhaps the most important of the German colonies, German East Africa is but little suited for settlement by white men. Under its exclusively tropical climate the European engaged in hard manual labour would be bound to succumb in the long run. In this part of her overseas empire, the mother country must seek what profit is to be reaped from colonial enterprise in the industry of the natives, working either on their own plots of land or on plantations belonging to Europeans.

Very different are the conditions in German South-West Africa, where the subtropical climate renders it possible for Europeans to take an active part in the exploitation of the soil, and where, owing to the small numbers of the native population, the development of the colony must in large measure be dependent on white labour. In many respects German South-West Africa bears a close resemblance to parts of British South Africa, and Herr Dernburg deemed it advisable to make himself acquainted in the first place with the conditions in the British colonies, so that when he came to study the possibilities of development in German South-West Africa, where both agricultural and mineral industry are still in their infancy, he might have some knowledge of the lessons taught by British colonial experience in South Africa.

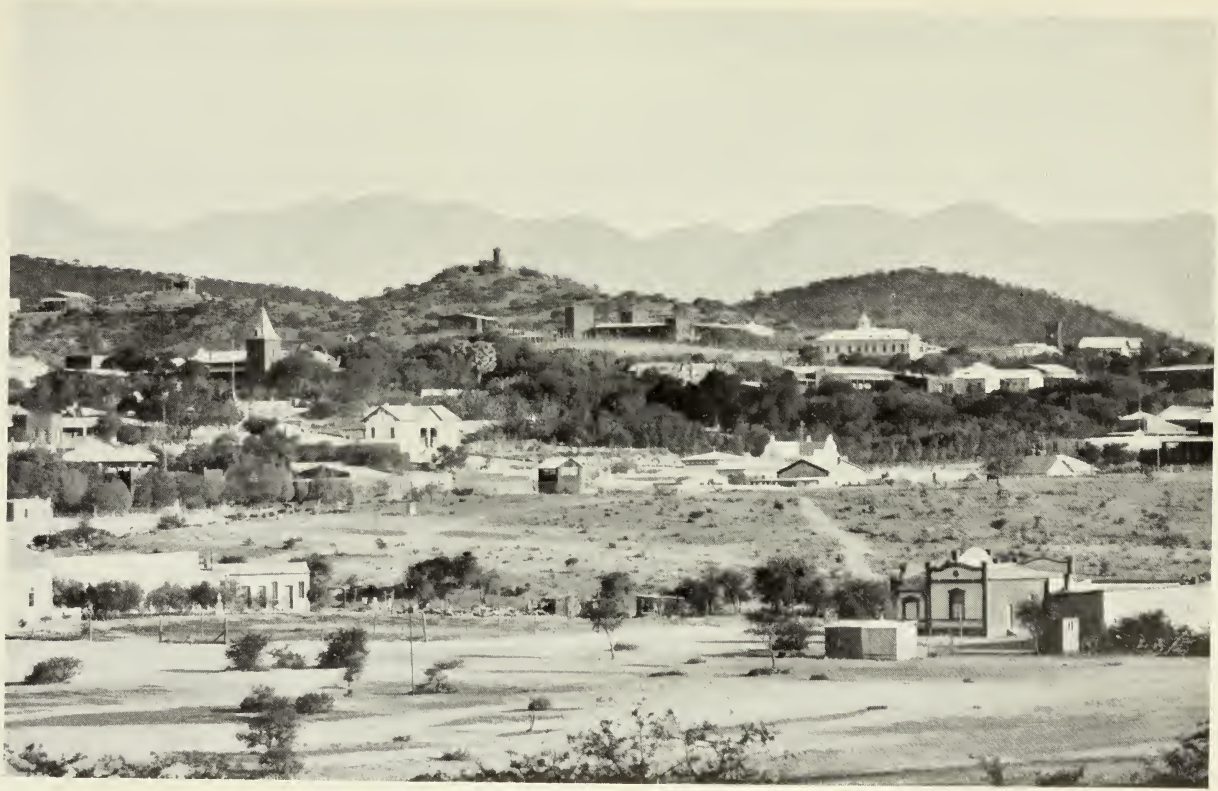
After a brief visit to London, where the Colonial Office afforded him every assistance and furnished him with letters of introduction, the German Colonial Minister embarked at Southampton on 16th May, 1908. The staff included Dr. Walter Rathenau, a shrewd, practical economist, and two officials of the German Colonial Office—Count Henckel of Donnersmarck, and Herr Schlüpmann, an Inspector of Works. I also was privileged to join the party in a private capacity, for the purpose of studying the economic conditions in South Africa. Arrived in South Africa, we spent a short time in Cape Town, and then proceeded through

the centre of the ostrich-farming district of Oudtshoorn, in the Little Karroo. The ostrich abounds in German South-West Africa in a wild state, and Herr Dernburg was therefore particularly anxious to ascertain under what conditions ostrich-farming could most profitably be carried on, and whether the German colony was as well suited for the industry as British South Africa. Our visit to Oudtshoorn made us realise that the rearing of ostriches with good feathers in the Little Karroo is largely owing to the favourable conditions of water supply. The food given to the birds, we learned, has a very important influence on the quality of the feathers, and in the dry season in particular the farmers have to devote special attention to the provision of suitable food supplies. The principal item of the diet is lucerne, and this is grown in the Oudtshoorn district by irrigation, all the water required being obtained from the Olifants River, which flows all the year round.



In German South-West Africa, on the other hand, the rivers run dry at certain periods of the year, except in the extreme north and south of the colony, and the large outlay on irrigation works which would have to be incurred in establishing farms for the production of ostrich feathers of the first quality would be out of all proportion to the value of the industry at the present stage of German colonization. If carried on in conjunction with stock-breeding, however, as in the northern Karroo, and if limited to the production of feathers of secondary quality, ostrich farming in German South-West Africa should be capable of profitable development. A later visit to the northern Karroo showed that the large and costly dams and other storage works were justified economically, in the majority of cases, not because they promoted cattle-rearing and agriculture, but because they permitted irrigation and consequently the cultivation of lucerne as food for ostriches. As fodder for sheep, lucerne is mostly too expensive.

Proceeding by Port Elizabeth, East London, and Durban, our party arrived in Natal, the Garden of South Africa. Herr Dernburg's inspection of these ports was particularly instructive in connection with



View of Windhoek.

Windhoek is the seat of administration in German South-West Africa. It is connected with Swakopmund (237 miles) by railway and telegraph.

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the harbour improvements which will have to be undertaken at Swakopmund. It is well known that the landing accommodation at that place, exposed as it is to a heavy sea swell, is very defective. At present the only landing stage there consists of a wooden bridge built by the garrison in occupation during the native rebellion. The ship borer insect has already attacked the structure, which an unusually heavy sea may at any time sweep away. The future landing accommodation at Swakopmund will probably consist of iron piers similar to those observed at Port Elizabeth, where the natural conditions are the same. A scheme has, indeed, been put forward for the improvement of the harbour by the construction of massive breakwaters and piers at an estimated cost of fifty million marks (£2,500,000 sterling). It is doubtful, however, whether any such expenditure can be justified in face of the experience of the British colonies. We could not fail to observe that many excellent improvements had been effected at the ports we visited. Harbour works were undertaken and carried through at great expense during the Boer War, and in such an emergency may have been justified, but during the depression now prevailing in South Africa the large sums claimed for interest, redemption, and cost of maintenance heavily burden the colonies concerned, and are quite disproportionate to the trade returns. It is necessary to guard against such a state of affairs in the case of Swakopmund, where an outlay of fifty million marks on harbour improvements would be out of keeping with the resources of German South-West Africa, which can be estimated with fair accuracy for some years to come.

While in Natal, Herr Dernburg received intelligence of the diamond "finds" at Lüderitz Bay. This news induced him, after making a stay of several days in Johannesburg, to carry out a more thorough inspection of the Premier Mines at Pretoria and the mines of the De Beers Company in Kimberley. Here, as everywhere else in British South Africa, Herr Dernburg found the most generous hospitality and the greatest readiness to lay everything open to his inspection. It might be thought by some that the knowledge collected by Herr Dernburg of economic methods and market conditions in British South Africa would lead to a not altogether desirable competition on the part of the neighbouring German colony. The control exercised over the exploitation of the newly-discovered diamond fields indicates otherwise. It proves in fact that the friendly co-operation of the British and German authorities in South Africa is to their mutual advantage. Whereas the cost of production per carat averages fifteen to twenty-five marks in the case of diamonds from the British fields, the cost of production of the German diamonds is reckoned to average but five marks per carat, and but for its accurate appreciation of the crisis in the diamond industry in the summer of 1908,

the German Colonial Administration could hardly have been in a position to adopt legislative measures to prevent the German diamonds from being thrown on the market in large quantities at a cheap price.

To be sure these legislative measures were adopted in the German interest. They operated, however, no less in the interest of South Africans generally. The authorities have the right of limiting the sale of diamonds according to circumstances; that is, they give permission to offer for sale only so many German diamonds as the course of the world's market determines to be in the interest of the collective diamond industry, thus preventing competition to the profit of certain parties or groups but to the loss of the general trade. By an ordinance of the 16th January (1909) the valuation of all the diamonds produced in German South-West Africa has been entrusted to the German Colonial Office, which, acting under the powers conferred upon it, has commissioned a Syndicate to exercise the trust. In this way the Government hopes to place the industry on an assured basis, to avoid an unprofitable reduction in prices, to secure to the Imperial Treasury a due share in the profits, to encourage the organization of a powerful group which will see that German diamonds take their proper place in the world's markets, and to bring about a revival of the diamond-cutting industry in Germany.

The discovery of diamonds in German South-West Africa was the realization of a long cherished hope. Certain geological features, notably the presence of "blue ground" spots at Gibeon, had given rise to the belief that diamonds would be found in the colony. Yet it was not without surprise that news was received of their discovery at Lüderitz Bay. It is still a subject of controversy how the diamonds came to be there. The first stones were found in May of last year by a negro who was engaged in work on the railway which is being built from Lüderitz Bay to Keetmanshoop, and who had previously been at work in the Kimberley diamond mines. The exact spot where the find was made is situated about ten miles from Lüderitz Bay, close by the railway station of Kolmanskoop. The surrounding country is of a desert character, the soil being composed of fine sand. Mixed with the sand are large numbers of small stones about five millimetres in diameter, consisting principally of jasper, chalcedon, black silicious schist, quartz, and agate. Besides these, diamonds are found in the sand in a tract of country of varying breadth around Lüderitz Bay, in shape like a half-moon and measuring in its greatest extent about ten German or forty-seven English miles. They are found to a depth of thirty centimetres (nearly one foot). In weight they vary from between one-fifth to three-fourths of a carat, most of them being less than one-third of a carat in weight. The stones are very beautifully crystallised, and in the opinion of experts whom

Watering Cattle in German South-West Africa.

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I consulted both in South Africa and in Germany, they are of good water and fully equal in quality to Kimberley diamonds of the same size.

As to the abundance of the supply, Herr Dernburg was not left long in doubt after his arrival at Lüderitz Bay. The Imperial Secretary and his fellow travellers, including myself, must have presented a comical spectacle as we lay prostrate on the ground zealously hunting for diamonds. Whenever one of us stood up to stretch himself and saw the others grovelling in the sand, he burst into peals of laughter. We continued our search for half an hour, and during that time picked out ten diamonds. As soon as the eye gets accustomed to the conditions it can easily detect the diamonds flashing among the little specks of quartz and other small stones.

At first, after the discovery of the diamond fields around Lüderitz Bay, the precious stones were collected by diligent search in the sand in the manner just described. Primitive as were the methods pursued, the weight of diamonds obtained down to the end of last August was no less than 2,720 carats. Since then the search has proceeded along more systematic lines. A sieve is filled with sand and shaken to and fro, while at the same time water is poured over the sand. The diamonds, by reason of their weight, sink to the bottom of the mud which is thus formed, and when the sieve is overturned with a jerk they are found on the top of the mud and can be easily picked out. Even so, no doubt many of the smaller stones are lost ; but the process has the advantage of being extremely cheap, brackish water being obtainable on the spot. In spite of the crudeness of the process, the quantity of diamonds obtained has gone on steadily increasing, as is shown by the following figures, which set forth the production down to the end of last year :—

1908.	Carats.
May to August	2,720
September	6,644
October	8,621
November	10,228
December	11,549
Total	39,762

The selling price of the diamonds thus obtained down to the end of last year may be placed at 1,100,000 marks, or £55,000.

As already stated, the origin of the diamonds found in the Lüderitz Bay district is still an unsolved problem. No " blue ground " has yet been observed in the neighbourhood. It is assumed that the precious

stones have been swept away to their present place of deposit by the mighty sand storms which blow from the south-west. Possibly the "blue ground" localities lie in the adjacent sea, whence the diamonds are washed ashore by the waves and thence carried further inland by the wind. It is possible also, if improbable, that the Lüderitz Bay diamonds are derived from another formation than "blue ground," and in this connection it is not unworthy of note that though the Indian and Brazilian diamond fields have been worked for centuries, diamonds have never yet been found among them in "blue ground." Equally in dispute is the origin of the diamonds found in the neighbourhood of Kimberley, in the alluvial soil by the Vaal River.

Even should no productive "blue ground" patches be found in the Lüderitz Bay district, there is not any reason why the diamonds buried in the sandy soil should not yield reasonable, though not extravagant, returns for a considerable number of years to come. Compared with the diamonds taken from the Kimberley Mines and from the Premier Mine at Pretoria, where stones of the size of a hazel-nut are not unfrequently found, the Lüderitz Bay diamonds, which are on an average only about half the size of a pea, must no doubt be reckoned very small. Yet seventy per cent. of all the diamonds found in the world are no larger than the diamonds found in German South-West Africa, and while exaggeration is no doubt to be deprecated, the discoveries at Lüderitz Bay have certainly an importance which it would be equally foolish to underrate.

The interest of the German Colonial Secretary in the mining industries of British South Africa was not, however, confined to diamonds, but extended to copper, coal, and gold, all of which are included among the resources of German South-West Africa, though whether they exist in sufficient quantities to permit of their profitable working has still to be proved, except in the case of copper. The largest mining enterprise at present in operation in the German colony is that of the Otavi Mines and Railway Company, which is now working the copper ores of Tsumeb, in the northern part of the colony. For the purpose of facilitating its operations, the Company has constructed a private railway three hundred and fifty miles long from Swakopmund to the mines at Tsumeb. The ores produced containing over fourteen per cent. of copper are shipped to Europe, while those containing a smaller percentage are smelted on the spot. Fortunately for the Company, there were found at the end of the year 1907, near the railway station of Kalkfeld, ironstone beds which now provide material for smelting purposes which formerly had to be imported at heavy cost. The presence of copper ore has also been determined at a number of other places—for example, at Otjosongani, Garob, and in the Khan district. At some of these places mining

operations have already been commenced. At others it has still to be determined whether the ores are sufficiently rich to repay exploitation.

For the purpose of collecting accurate information about the mineral wealth of the Protectorate, a number of German firms have combined to form a syndicate, which proposes to conduct experimental workings on a large scale. One of the most interesting of these operations will be the sinking of deep borings for coal in the Karroo country. Streaks of bituminous shale have repeatedly been observed, and as the geological formation corresponds to that of the northern Karroo country in Cape Colony, there is every prospect that the borings will be attended by success if they can only be carried to a sufficient depth, say one thousand feet below the surface. Before, however, an adequate idea can be obtained of the mineral resources of German South-West Africa, the country must be examined geologically by competent prospectors, not in patches but as a whole. As a step in this direction, the German South-West Africa Company, of which the Otavi Mines and Railway Company is an offshoot, has been granted for prospecting purposes a concession of territory five thousand square miles in extent, comprising a region which in the opinion of geologists is of a most promising character.

Herr Dernburg's tour, however, showed plainly that it would be a great mistake to rest the economic welfare of German South-West Africa exclusively or even principally on the mining industry. The depression under which British South Africa has been labouring since 1904 affords striking evidence of the danger of over-estimating the part played by mining in the general economy of a country. Mining is not a stable factor in economic development. In German South-West Africa the mines already in operation will sooner or later be exhausted; the discovery of new mines is more or less problematical; and at best the mining industry is liable to great fluctuations. The cost of transport in a new and thinly populated country of vast extent renders unremunerative the working of many otherwise profitable mines. In short, the development of mining in German South-West Africa, profitable as it is hoped it will be, must be encouraged only as a kind of windfall, or, in other words, as a premium conferred on the colony to encourage the cultivation of the soil. The main object of colonial policy in this part of the German overseas empire must be the extension of stock-breeding on an extensive scale, and this can only be done under present conditions by individuals or companies employing a large amount of capital. In the south and centre of the colony a farmer must be prepared for occasional long periods of drought, and it is therefore essential that farms should be planned on a large scale so that in normal seasons pasturage may be kept in reserve against lean years.

The southern portion of the Protectorate is similar in character to

the northern Karroo of British South Africa. Like the latter, it is best adapted to the breeding of sheep and goats. Whereas formerly farming was almost exclusively restricted to the breeding of sheep and goats for food, the farmer is now turning his energies with profit to the breeding of sheep for wool. Since the rising of the natives has wiped out nearly all the cattle in German South-West Africa, it will take some time to establish a regular export trade, with which object the Liebig Company has obtained a large concession of land. In this critical period, following a long war, the revival and promotion of stock-breeding is the most important task devolving on the administration. Simultaneously it behoves the administration to render all possible assistance to private enterprise in the development of the mineral resources of the colony, and by granting a comprehensive measure of self-government to give the white population as large a share as possible in the management of all economic affairs. Herr Dernburg has been encouraged to recommend a policy of self-government by what he saw and heard in British South Africa, his observations in Cape Colony, in Natal, and in the Transvaal, having furnished instructive evidence as to the general capacity of the German settler. Wherever he went, the German Colonial Secretary was told by the British authorities that the industry and persevering qualities of the German element in the population played an important part in the economic progress of the British colonies, and that the centres of German settlement were always among the most prosperous portions of the community.

Space does not permit me to touch on many other questions which engaged the attention of Herr Dernburg during his tour in South Africa. In conclusion, I should like once again to acknowledge the great kindness with which our party was everywhere received. Both officials and private persons united not only in extending to us the warmest hospitality, but in furnishing us with all the information we required. Without this courteous assistance it would have been impossible for Herr Dernburg to have gathered so many valuable suggestions bearing on the conduct of German colonial policy and the defence of the common interests of Britons and Germans as colonial neighbours in South Africa.

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419] Kaisariyeh.

Over the Anti-Taurus from Adana.

By Captain ARTHUR F. TOWNSHEND, F.R.G.S.

Formerly British Military Consul at Mersina.

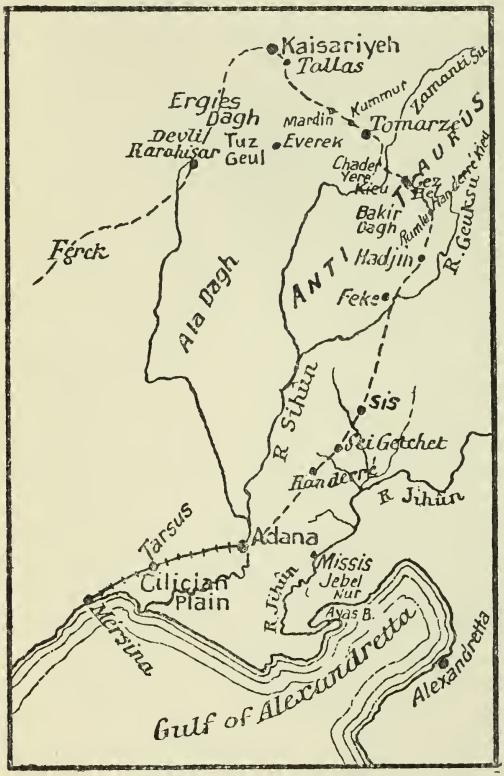
In November, 1904, I was British military consul at Mersina for the vilayet of Adana on the south-east coast of Asia Minor. It was part of my duties to make frequent journeys into the interior, and in the year and month mentioned I decided to start for Kaisariyeh, in the vilayet of Angora, not by the usual road, which is practicable for the local arabas (carriages), but by mountain paths through Hadjin and Tomarzé. Foreign consuls, or indeed any foreigners, in that region are few and far between, and persistent reports had reached me to the effect that things were in a very unsatisfactory state, that the country north of Hadjin was overrun by Circassian brigands, and that social conditions, especially in Kaisariyeh, were not all that could be wished from the point of view of the local Christians, as represented by Armenians and Greeks.

It was too late in the year to make such a trip for pleasure, but all that concerned me was whether it was still possible to cross the mountain passes before they were blocked with snow ; if not, I should be unable to traverse the route before the following April. The first step was to go to Adana by train from Mersina, a journey of two and a-half hours over the Cilician plain. At Adana preparations were made for a start on November 5th. The party consisted of myself and another Englishman from Mersina, a Syrian Arab cook, an Armenian servant, two Armenian pack-horse men, and a Zaptieh (Turkish mounted policeman) named Ali.

To accomplish any distance with pack-horses one must be up betimes in the mornings, as the men take a good deal of hustling, so by 6.30 a.m. we were *en route* on a brilliantly fine morning over the dead level plain to the north-east. It was a relief after a few hours to enter low ridges covered with scrubb. We stopped for a late lunch at a police guard-house, and arrived at dusk in the village of Sei-Getchet, all the inhabitants of which are Turks. Being in comparative proximity to the coast, they are quite accustomed to strangers. We had no difficulty in getting a village house to ourselves, and after camp beds, etc., had been installed, we passed a comfortable night. Starting again at 5.30 a.m. and crossing more monotonous plain, we reached Sis (where there is an Armenian Cathedral with some rather fine pictures) an hour before noon, and halted outside it while I exchanged visits with the Governor.

We were now done with the plain and with the track known by courtesy as the " carriage road." On leaving the town the route to Hadjin leads

almost due north up an open valley infested with a peculiar sort of fly which gets into horses' nostrils and irritates them greatly. One or two of our animals were almost unmanageable, literally shivering with fear and pawing at their noses like dogs. Luckily the fly-belt only extended for about a mile. We then crossed some ridges and ascended some pretty little valleys densely wooded with oak, arbutus, and ash, of which the leaves were only just assuming their autumn colourings, and one would have said we had picked out a perfect season for the trip; but as yet we had only ascended one thousand feet, and previous experience had taught me that it can be mid-winter north of the Taurus Range while it is still summer-like on the Mediterranean seaboard.



About three o'clock we came to a small han (inn), where I almost decided to stay for the night, but the people persuaded me that there was another and much better one an hour further on. I afterwards found that there was nothing of the kind, and presume our informants preferred our room to our company, and so had got rid of us by the easiest means. After an hour-and-a-half's ride we reached Suluhan, a big deserted stone building of which the ends had fallen in and through which the wind was whistling. It was very dirty and cheerless looking, but we learned from some travellers that there was no shelter ahead within a distance of three hours' march (which statement we verified next morning), so we had to make the best of it. There was plenty of water, but getting fuel was a difficulty. Unfortunately, we had only one axe, but by breaking down branches with the pack ropes we got enough wood to cook with. It was not actually cold in the han, but the place was terribly draughty. There was no straw (in lieu of hay) for the horses, and only a little barley brought from Sis. However, the night was fine, and we managed to get a certain amount of sleep in spite of the jackals.

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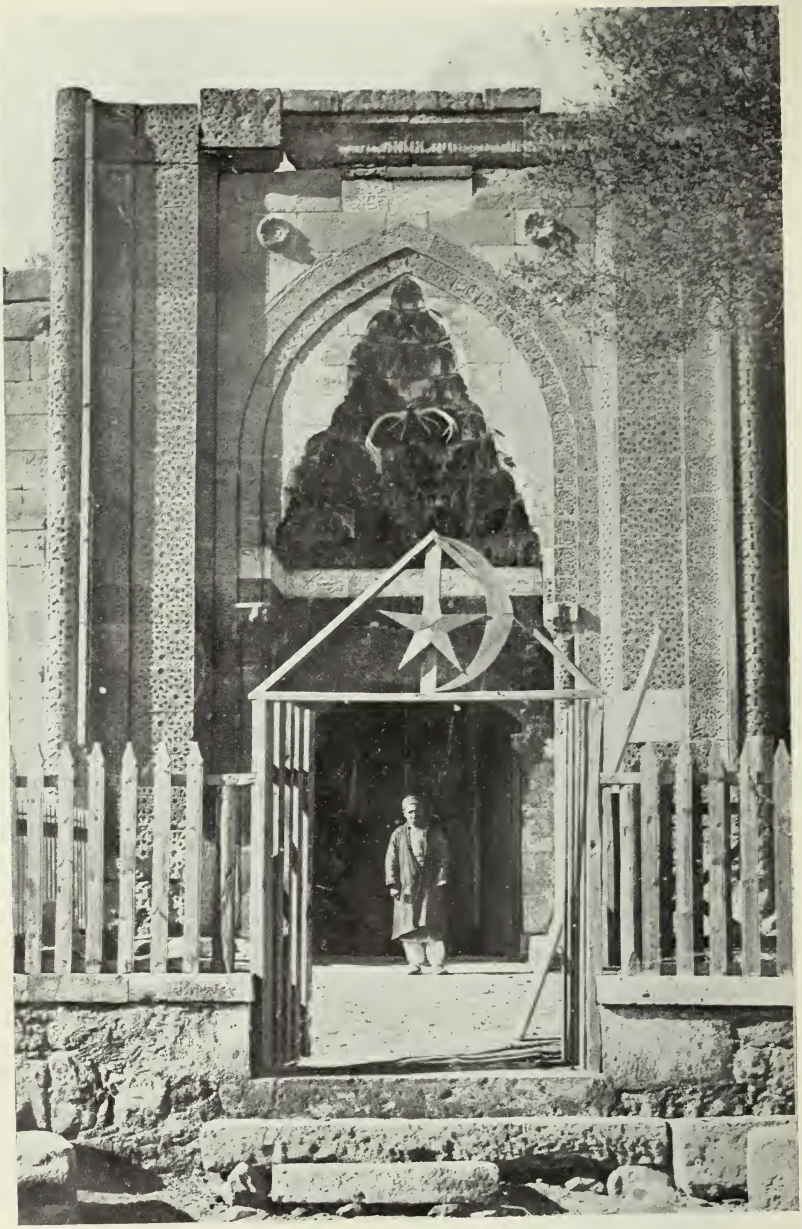

421] Entrance to a Mosque, Kaisariyeh.

On November 7th, our third day on the march, we were all glad to get up and start again, so that 5.30 saw us in the saddle and winding our way up beautifully wooded valleys, over ridges and down into other still finer valleys, the path easy and the weather perfect. We crossed a ridge at a height of over three thousand feet, where I got a couple of lucky shots at red-legged partridge, and then by an excessively steep descent came to a wooden bridge spanning the River Geuk Su, and halted for an hour. The river is about twenty-five yards wide, and comes out of a rocky gorge just above the bridge. Close at hand are four or five houses and a han, where we were able to get fodder for the horses. Two Armenians who were passing stopped to look enviously at my men eating their dinners, and overwhelmed us with gratitude on being presented with a loaf of bread, some cheese, and a few hard-boiled eggs.

About an hour after sunset that night we stopped at Ghumbat Han, which stands on the bank of the Geuk Su some miles further up. Here we found a battalion of soldiers encamped for the night, and the Hanji was unfeignedly glad to see us, having expected to lose a good many fowls and small supplies. Our entry caused the soldiers to evacuate the han, and I got a fairly comfortable room, or rather a corner of the han separated by a few boards from the combined main room and stable. I had just got into my camp bed when the most appalling clamour broke out, the cause of which turned out to be a traveller, a Turk, who had arrived riding a mare, which he had calmly tied up amongst our horses ; men were cursing, horses were kicking, and there was general pandemonium. The Turk was very impertinent when I interviewed him, not being sufficiently impressed with consular dignity as seen in pyjamas by candle light, and quiet was only restored when he and his mare had been forcibly ejected.

From this point onward we saw no more of the lovely valleys, but entered upon a bare mountain country, which looked more and more inhospitable and wintry as we ascended. Next day, after five hours' march, we got to Hadjin, 3,500 feet high. The population of twenty thousand is almost exclusively Armenian, and the town extraordinarily congested. It is built on a knoll which runs out into a basin surrounded by high bare mountains. The streets are narrow, steep, and very dirty ; the houses built in terraces, and the people miserably poor. We rode straight to the han, where the majority of the townsfolk assembled to see us, but I had hardly arrived when I received an invitation from the American Mission station, which was in charge of Mr. Martin, a Canadian ; so leaving the men in the han, I gladly availed myself of the kind offer of a civilised bedroom, a hot bath, and other luxuries.

We spent the following day in Hadjin exchanging visits with the Kaimakam, Skandar Hadad, a Syrian, and hearing a great deal of talk

about Circassian brigands, who, people said, were rendering the road to Kaisariyeh impassable. One rather amusing story was of a colonel who had been robbed of £T.200, and on explaining that he commanded the local garrisons had been answered by the robbers, " Oh, quite true, you are a Bimbashi in the town, but we are Bimbashis on the road ! "

On November 10th we left Hadjin in the morning, taking a second Zaptieh as guide, a most excellent young fellow named Genjo, a Kurd, who knew the country thoroughly well. He also was anxious about the brigands. He said they had lately shot two Zaptiehs. The road or track leads steeply up to a pass, the Obroch Bel, after which there is a gradual descent to the Greek village Rumlu and the Kurdish village Shanshai, and then a very steep climb up through a forest of fir trees to the Chanbel, 5,550 feet. There we halted for a little to breathe the pack-horses, the descent beyond being so steep and rough that everyone had to lead his horse. We passed about forty Circassians in parties of four or five, all of them men who lived by plunder and horse-stealing. Every man was armed with a Mauser rifle, a revolver, two bandoliers, and the long Circassian knife, and the majority had led horses. One party of four had twenty-six horses, all good ones. They enquired several times from the Zaptiehs (who were very much alarmed) who we were and where we were going, and on receiving the information apparently considered that there might " follow a thousand swords to carry our bones away " ; at any rate, they merely looked at us solemnly and said, " May your journey be successful," and remained motionless until we were out of sight. From what I learned there were about one hundred and fifty of these Circassians in the neighbourhood who could unite on a prearranged signal to resist police, etc., but who found four or five of their number enough to hold up a caravan. They were even said to be quite polite and not to molest poor people. I have only known one instance of a foreigner being held up in the district ; they know that meddling with foreigners may have unpleasant consequences.

At five o'clock we arrived in the Kurdish village of Han Dere Kieu and were at once conducted to the best house, which was new and clean. In a few moments a fire of great pine logs was burning and giving enough heat to roast an ox, it being very cold at this height (5,510 feet). Our host, Ali Riza, was untiring in his attentions ; carpets and rugs were produced, eggs, milk, and fowls were literally piled up outside the door, and finally our horses were fed and cared for, the Kurds even refusing to let the pack-horse men groom their own horses, saying it would be a " shame " to let their guests work. I could not help reflecting, however, how different would have been the reception of these same Armenian pack-horse men had they been by themselves. The people begged me to ask the Governor-General to let them have some

rifles and ammunition as a protection against robbers, but I very much doubt if they were in any danger. The idea of Kurds demanding help against their neighbours seemed rather comical, and I think any brigands, Circassian or otherwise, would think twice before attacking a large Kurdish village.

The march to Tomarzé being a long one, we started very early next morning, in spite of a strong northerly wind which was driving stinging sleet through the village. Our hospitable hosts were all up by four a.m., and fed and groomed the horses, which rather embarrassed me, as I was warned by Ali, the Mersina Zaptieh, not to offer any money, which he said would offend them deeply. Not liking, however, to take everything and give nothing, I tried to give a few Medjidishs to some small children, who refused them at once. I also took advantage of the darkness to give something when I was mounting to the man who had looked after my horse, and we started at six a.m. on the steep climb to the Gez Bel, but had not been gone from the village a quarter of an hour when Ali Riza galloped after us and returned me my money.

At the pass, 6,600 feet high, the weather was brighter, and we were glad to begin descending without having got into snow. I afterwards heard that this pass was blocked with snow three days after we had crossed it. As the day advanced we trudged on (for an hour in a thunderstorm) over a level plain past a few small villages to Tomarzé, where we arrived soon after four o'clock. The population numbered about four hundred Armenians, and the village was dilapidated and dirty. The Governor very kindly asked me to consider the Government offices at my disposal, so I soon had my bed set up amidst the tables and divans of faded red velvet which represented the majesty of the Ottoman rule.

On November 12th we started on the last stage of our outward march at six a.m. A few snowflakes were falling, and we pushed on rapidly. By ten o'clock the snow became a blizzard, driven before a northerly gale, and the horses, accustomed to the warm Mediterranean breezes, were with difficulty induced to go forward. It was, indeed, a most miserable ride. As we crawled along the lower slopes of the Great Ergies Dagh the cold was intense, and in vain did we look for any shelter ; the humblest hut wherein to make tea or cocoa was not forthcoming, and one could not even smoke in the gale and thick snow.

At 1.30, wet, cold, and hungry (breakfast had been a rather sketchy affair at 4.45), we got to Tallas, a suburb of Kaisariyeh. At Tallas, which has a population of ten thousand Greeks and Armenians, there is an American Mission Hospital which does a vast amount of good to all sects impartially. After a rest, we pushed on for another hour into Kaisariyeh, a city of sixty thousand people, of whom the large majority are Moslems. The bazaars are very well supplied by means of camel

caravans. There are no European residents, and I have not found such a bitter feeling between Moslems and Christians in any other place I have visited. Greeks or Armenians dared not walk through the Turkish bazaars at any time, and seldom went out after dark. An old Turk asked one of my Zaptiehs if he was not ashamed of himself for walking with my Christian Syrian cook. Our entry caused no little stir, especially as the month was Ramazan, and although the Mutessarif was bound to receive us with apparent delight, it was pretty plain what the people thought of us. We put up at a Greek han, where I had the unwonted luxury of three rooms, and was fairly comfortable.

In the evening I dined with a Greek family, relations of a consular official at Mersina, and found a banquet worthy of the Guildhall. Course followed course in the strangest order, sweetmeats of various kinds arriving at unexpected moments *à la Turque*. Two of my hosts spoke French fairly well, but only one knew Greek, which struck me as a remarkable instance of how these Greeks of the interior have become cut off from intercourse with the land of their ancestors, though they still cherish its traditions. It seemed strange to hear people talking of perhaps going to the coast "next year if the vines are good and there is no massacre," just as one would say, "if the weather is fine." As a matter of fact, massacres of Greeks and Armenians, especially the latter, have several times taken place in Kaisariyeh.

After transacting various businesses we returned to Mersina by the main caravan route through the Cilician Gates, with an impression of leaving a city of domineering, fanatical Turks, cringing but equally fanatical Christians, fear, poverty, and mistrust.

In view of the massacres that have taken place in the vilayet of Adana since the above was written, it may be of interest to describe that district as it appeared to me during my two years' residence there (1903–1905). A massacre is hardly likely in Mersina, situated as it is on the coast, with a large population of foreigners, including consuls of nearly every European Power. Moreover, the native Christian population, consisting of Armenians and Syrian Arabs belonging to the Greek Church, is almost equal in number to the Turks. The town is surrounded by fruit gardens and orange groves, which are inhabited exclusively by Fellaheen, as are also many villages on the Cilician Plain, and these Fellaheen, who are not really Moslems, and whose language is Arabic, are sufficiently numerous to have a casting vote in the matter. On a previous occasion when a massacre was feared, the Fellaheen announced that if it took place they would come to the help of the Christians. The result was that nothing occurred. They serve in the army and police,

and are treated by the Government as Moslems, though they never go near a mosque.

Mersina itself is so cosmopolitan that one could get on pretty well there speaking only French, and very well if one spoke only Greek or Arabic. In appearance it is very like a town of southern Europe, with European-looking houses, of which the most prominent is the Greek Orthodox Church. The honorary consuls are chiefly local Greeks or Levantines, the only " consuls de carrière " being the representatives of Great Britain, France, and Greece. The dangerous element undoubtedly lies in the Yuruks, illiterate and fanatical, but often wealthy, who own enormous herds of cattle and camels, and spend the summer in the upland pastures in the mountains north of the Cilician Plain, and descend in the winter to numbers of little villages which are dotted about the plain. The population of Mersina varies from eleven thousand in winter to eight thousand in summer.

From Mersina there is a railway to Tarsus and Adana, and a wide straight road which is in bad repair but much used by camel caravans from the interior. The distance to Tarsus is only about sixteen miles, but the two towns are very different in appearance. Tarsus is practically a town of the interior, with its bazaars and white flat-roofed houses. Europeans are much scarcer than in Mersina, and the Moslem element prevails everywhere, though the Armenians and Greek-Arabs are fairly numerous. The American Mission buildings, known as St. Paul's Institute, are prominent features on the outskirts of the town and have, I believe, been a harbour of refuge to the Armenians during the recent troubles. Like Mersina, the town is surrounded by fruit gardens and orchards. It is of great importance as the starting point for the caravan traffic to the north, and it is no unusual thing for over three thousand camels to arrive there in one day, having crossed the mountains through the Cilician Gates, bearing great bales of grain and carpets from the far interior. A large quantity of cotton is grown on the Cilician Plain, and a cotton-ginning establishment in Tarsus—run, it may be noted, by English machinery—gives the chief employment of the place.

About twenty-four miles beyond Tarsus the railway terminates at Adana, the capital of the vilayet, and the scene of the greatest of the recent massacres. Here also cotton provides the chief industry, and the chimneys of a large factory are visible for many miles over the plain. Essentially a city of the interior, Adana, in spite of the railway, is as oriental and primitive as if it were one hundred miles further up country. All the elements which compose the population of Tarsus are to be found and in addition there are large numbers of Kurds, Circassians, Persians, and Afghans. The Kurds, who are more lawless than the Turks, are greatly feared by the Armenians, and with good reason, as has just been

demonstrated. The Afghans were always a source of trouble to me, as they claimed British protection, which was afforded to them as far as possible unofficially; when they got into trouble they came to the Consulate and called themselves British subjects, and when all was going well they rejoiced at having settled in the land of the Caliph secure from the interference of the White Rulers of India. There were also a good many genuine Indians, who had come there for the same reason, and generally had omitted to bring British passports, being quite satisfied to be Ottoman subjects until they discovered the disadvantages of that status.

Adana contains a few ill-paved wide streets and a huge network of narrow tortuous lanes, flanked by houses built of wood and mud, of which many have now been burned. You can drive everywhere—that is to say, a carriage can get along, but two carriages cannot pass, and the extreme roughness of the large cobble-stones, in which are many holes, necessitates a walking pace when once the main thoroughfares are left. In the heart of some of the narrowest and darkest streets is a large American Mission. The large covered bazaar is, or rather was, well stocked, but as most of the shops were kept by Christians, it is probable that looting and fire have now wiped it out of existence. As in other oriental cities, the men of each trade have their own especial streets; one street may be entirely occupied by workers in copper and brass, the next by saddlers and leather merchants, the next by shoemakers, and so on.

A very fine old stone bridge, originally built by Justitian, leads out of the city across the Sihûn River and on to the dead-level plain, which stretches away to the foothills of the Taurus Mountains. Missis and Osmanieh, further to the east, are like miniatures of Adana, everything being on a smaller and more insignificant scale.

The vilayet of Adana is not, however, composed only of the Cilician Plain and the towns thereon, but stretches far into the mountains to the north, and among other villages contains Hadjin, mentioned in the earlier part of this article. Hadjin, without outside interference, would be in no danger of a massacre, as the small number of resident Turks could not attempt to fight the overwhelming numbers of the Armenians. But the latter know their own weakness; they are painfully aware that the town is commanded on all sides and that they are entirely at the mercy of the surrounding villages, which are chiefly peopled by Kurds and Circassians, and the fact of houses being burned and people massacred in Hadjin goes far to contradict the statement that robbery was the chief incentive of the Moslems, as one would hardly have thought there was enough value in such a poor place to excite any cupidity.

[26] Turkish Government Clerks, Kaisariyeh.

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The British Emigrant in Canada.

II.—The Bright Side.

By A. G. ADSHEAD.

One day last summer I visited the Dominion Government's experimental farm at Indian Head in the Province of Saskatchewan. The superintendent of the Indian Head Farm is Mr. Angus MacKay, and what Mr. MacKay doesn't know about farming in Western Canada you can, as Kipling says, ask the shop next door. After a stroll round the beautiful, well-kept grounds of the farm, Mr. MacKay led me to a view-tower on the top of a large barn. From the tower the eye commanded on all sides a wide sweep of Canadian prairie. At the time the landscape in every direction was a golden sea of wheat which rippled beneath the warm prairie breezes. At almost regular intervals grey, substantial farmhouses dotted the expanse.

"That," said Mr. MacKay, pointing out to me one of these buildings, "is the house of a man who came out here from the Old Country about twenty years ago without a penny to his name. He hired out to a farmer for a season or two, and then started for himself. To-day he is worth anything from $50,000 to $100,000. Over there," continued the superintendent, "is a man who came here from Ontario head over ears in debt. To-day he is a wealthy farmer owning two sections (two square miles) of land." And "over there" was another prosperous farmer, who had risen to affluence from nothing, and "over there" another and another and yet another. It may be admitted that Indian Head, which is on the main line of the Canadian Pacific Railway, is the centre of a particularly rich grain district, but it is nevertheless true that scattered up and down the prairie provinces of Manitoba, Saskatchewan, and Alberta are the broad farms and ranches of men who years ago began operations with absolutely no capital beyond their bodily and mental powers. The only point which I wish to make here is that these things have been done in Western Canada. How far the average British emigrant may hope to repeat the experience will perchance appear from what follows.

Just about eight years ago I was kicking my heels in the wooden bunk of a steerage cabin on board a liner bound for Canada. Painful farewells had been said at Liverpool, and, at the time I am thinking of, we were either crossing the Mersey bar or creeping along the Welsh coast. After many days of bustling preparations I now had leisure to take mental stock of things past and speculate on things to come. I admit I had a general

sense of satisfaction in leaving the Old Country. I was not, I think, made for the well-ordered round and the slow promotion of big English cities. I had been getting the worst of it. Probably my sense of proportion was upset, and the reading of Thoreau, Ruskin, and Prince Kropotkin, had not helped to bring my mind to the Old Country focus. I hated the city and everything that suggested it.

As I lay in my bunk amid the tobacco smoke of fellow passengers, who were already swapping yarns and spitting at regular intervals on the floor, I felt a great and unspeakable relief. Buildings and paved streets seemed to be things of the past and I thanked God for deliverance from their serried ugliness, which but a little while ago had tortured me. The smug, well-to-do Britisher with his lying formulas had loosened his grip upon me, and the sneers of society people had lost their sting. I thought of the new land to which I was going. I thought of the great rivers, the forests, the prairies and the snow-capped mountains. What a luxury it would be to work in a shirt and to dispense, if only for a season, with the collar and cuffs of civilization! I would hunt the moose and the wild deer in the forests, I would catch salmon in the clear streams, I would shoot the wild goose on the prairies and the wild duck in the marshes. I would breathe the free, bracing air, and I would see the reward of honest toil. So I thought and dreamed in a dimly-lit cabin of the steerage eight years ago.

The reality has been different from the dream. Realities usually are. I have lived to learn that the day's work is not done, even in Canada, without toll of body and mind. Life is not lived on the free prairies of Western Canada without moments of anguish, without the hour of sorrow and depression. Many a time, as I have smoked a pipe before a log hut or "shack," as we call it, that same city and its streets which once my soul abhorred have come before me in mellowed, transfigured and beloved outline. I have remembered many things which on the liner I had forgotten. I have remembered happy school-days, pleasant holidays, and the sweetness of friendships. But even in the moods in which these things come back to my brain, I am aware of a mental attitude fixed and clear, and clearer every day, which would prevent me from returning to the Old Country no matter what inducements were held out. I have seen all the present rottenness of Canadian politics. I have seen all the vices and all the virtues of the Canadian, and have probably acquired a few of both. I have lived in the Canadian town and the Canadian village, and I have also lived twenty miles from another man's abode and seventy miles from a railway. I have met at one time or the other members of every class of Canadian. I have been in tight corners on numerous occasions, and yet the sum total of my impressions is that I am a better man for having lived in Canada.

A Typical Western Town.

Showing grain elevator, railway station, livery barn, and general store.

The Old and the New Home.

Against the pioneer's shack has been built a more modern structure. The wood pile is the winter fuel supply, built in tepee form to prevent the wood from being buried in the snow.

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Before relating my own experiences, I may perhaps be allowed to lay one very common ghost. Much has been heard about the Englishman in Canada. Letters from disappointed emigrants are frequently reproduced in the English Press, and in other ways it has been sought to create an impression that Englishmen are not welcomed. A sufficient answer to all such statements and insinuations is the fact that in every Canadian city and in every Canadian town Englishmen are at this moment holding lucrative, responsible and honourable positions. Nor is there any farming, ranching, mining or lumbering district in Canada where Englishmen, to use a Transatlantic idiom, have not " made good." The most able mayor that the city of Winnipeg ever had was a Brixton-born Englishman, who reached Winnipeg in 1868 with a kit of workman's tools as his sole worldly possessions. The erstwhile tinsmith, James H. Ashdown, or " Jimmy " as he is familiarly called throughout the Canadian West, is to-day at the head of one of the largest business establishments in Canada.

It would be an easy matter for me to cite other examples of Englishmen who have risen to distinction and affluence in the great Dominion. They are to be found in the Dominion Senate and House of Commons, in provincial parliaments and city councils, on the Canadian bench, and presiding over boards of trade and other representative institutions. Whatever prejudice exists against Englishmen is due to the fact that they assimilate less quickly than do the Scotsman and the Irishman and members of certain other races. The situation has been aggravated by the sending out of a large number of English ne'er-do-wells and remittance men whose room at home is preferable to their company. A certain amount of friction was inevitable, and had the stream of emigration been from Canada to England, friction would have been equally inevitable in the Old Country. Hard feelings against Englishmen are discouraged and deprecated by the responsible Canadian Press, and it is very generally admitted that when once an Englishman has found his bearings in the Dominion he usually becomes a better Canadian than members of any other nationality or race.

To return to my own story, when I arrived at Quebec in the spring of 1901 stress of circumstances induced me to " hire out," as the phrase goes, to a Quebec farmer. I received one pound a month and board until harvest time came round, when for a couple of months I got two pounds a month and board. During the winter I got nothing at all, and was, in fact, glad to be allowed to remain on the farm with free board. I could write many articles about the French habitant of Quebec Province, and I have still pleasant memories of his picturesque and old-world life and of his delightful broken English, in which many beautiful Canadian poems have been written. But the Quebec farmer handles very little

ready money, and as far as the British emigrant is concerned his chief business with the Province of Quebec is to get out of it. The truth is that the maritime provinces, or "the provinces down by the sea," as they are popularly called, and the Province of Quebec, offer few attractions to the newcomer. Agriculturally these provinces cannot be called rich, and their development is slow, if not stationary. All the good land has long since been taken up, settled institutions obtain, and the labour market is well filled. Few British settlers ever give these provinces a serious thought, except those unfortunate young Britons who, like myself in the year of grace 1901, land at Quebec or Montreal with insufficient means to carry them further west. In straits of this kind the British immigrant will accept the twenty or thirty shillings a month, with board, which the Quebec farmer offers him, but as soon as possible he will hie him westward.

Ontario, the first province to the west, dips down into the Great Lakes to a degree of latitude lower than that of Boston, Massachusetts, and, at the present time, is the richest and most closely settled province of the Dominion. It is the province of large and beautiful farms, of trim country roads and wooded hillsides, of pretty market towns and tidy little railway stations. An Ontario farmer will give an inexperienced hand, provided he can make himself generally useful, from £2 to £3 a month, while during harvest time £4 per month and even more can be obtained. But Ontario is not for the enterprising British emigrant. There is no really good land now available at low rates in Ontario. A farm in one of the rich closely settled districts would cost at least £2,000. Only on the outskirts of settlement is there free land to be had in Ontario, and this is in the main light, rocky, and covered with bush.

The ambitious emigrant will therefore aim at pushing on to the prairie provinces. Every summer the Canadian Pacific Railway runs harvesters' excursions to the west. As the fare is about one-fifth of the regular rate, these excursions are very popular, in fact far too popular for comfortable travel. It is impossible to prevent a few blackguards and even criminals from taking these excursions, and from time to time this element is responsible for scenes of debauchery and licence on the trains. The vast majority, however, is composed of decent fellows, half of whom remain permanently in the west. Thousands of sons of Ontario farmers have left their homes during the past twenty years by these excursions. During my sojourn of about fifteen months on a Quebec farm I managed to save enough money to carry me west, and in the month of August, 1902, I bought a harvesters' excursion ticket at Montreal. My experiences since arriving in Canada had left me none the worse for wear. On the contrary I was in better health, more reconciled to roughing it, and better able to rough it. Plenty more practice in that line was to

Scene on an Alberta Cattle Ranch.

The cattle leaving the corral.

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come. The memory of the colonist car, with its broken sleep by night and its stale odours by day, still remains to be smiled at. But there also linger in my memory refreshing glimpses of Lake Superior, caught as the train skirted headland after headland of the northern shore.

The majority of my fellow passengers were bound for the grain-growing provinces of Manitoba and Saskatchewan, but on the recommendation of a friend I was going on to Red Deer in the Province of Alberta, the ranching province of the Dominion. I arrived there during harvest time, and found it an easy matter to hire out at a wage of eight shillings a day and board. That lasted for nearly three months. The winter I spent in a neighbouring lumber camp. Life was rough, but interesting, and at times even exciting. I earned there five shillings a day and my board. Many of the men were of the adventurous, drifting type, but on the whole they were kindly disposed and there was a strong tradition of fair play. The sleeping bunks had quite a fauna. However, I have lived many years in Canada since then, and have yet to hear of a Canadian lumber camp free from such company. Often during the wonderful starry nights many of us would set off in moccasins for a tramp through the forest, and return exhilarated for hot coffee and a sing-song.

The following spring I applied for one of the Dominion Government's homesteads or free farms. The Canadian Government offers 160 acres of good farm land to whomsoever will. To obtain an absolute title to 160 acres, which have to-day a prairie value of £2 an acre, or a total value of £320, an applicant is required to pay £2 cash, called a registration fee, and to live on the 160 acres for six months a year for three consecutive years. Popularly stated, the Dominion Government bets 160 acres to £2 that the homesteader will not remain on the homestead for six months in the year for three years, with the slight difference that the Government does not refund the £2 if it loses. At the present time the Government loses in over ninety-five per cent. of the cases in which free farms are taken up, though in former years the number of those who abandoned their homesteads was much greater than it is now.

Hiring a rig from a Red Deer livery barn, I drove out into the country with a land guide, whose duty it was to show the prospective settler the actual land in the vicinity set apart by the Government for homesteads. I saw the land, but on thinking the matter over I decided to get more experience and more capital before starting in for myself. It seemed to me that one person working alone had but a poor chance, and so I persuaded my brother to come out and join me on a ranch. I had saved about £30; my brother had a like amount, and we borrowed a sum from home. We then bought out a small rancher, whose ranch was about seventy miles from a railway, and became the owners of a few head of stock, a team of horses, a wagon, and some household goods. We had

all told, about £150, which is not a tremendous amount of money to put into a ranch that has got to support two people. We paid £50 for a team of two horses, £16 for a wagon, £8 for harness, and £5 for a saddle. At this time we owned no land, being what are called squatters. Our abode was the pure Canadian species of "shack." My brother and I hired out at odd times and made thereby sufficient for living expenses until we could depend on having a number of animals for sale every year. We made the mistake of buying breeding stock exclusively. What we should have done was to have bought a fair proportion of yearlings and of two-year-olds, so that after the first year our turnover, in normal circumstances, would have steadily increased. During the first two years we were forced to sell a few cows every year to buy winter clothes and tools and to pay for repairs.

In this way we jogged along for some years, not making our fortunes by any means, but seeing something for our labour, an improvement in our health and strength, and on the whole less anxiety than was the case at home. Although we worked hard enough in all conscience, we had time to read a good many books and to enjoy the newspapers and magazines sent us from the old land. We have gradually been surrounded by other settlers, whose advent has shown us ever more clearly that the days of pure ranching in Alberta are numbered and that the future will be to the farmer who combines stock-raising and grain-growing. Every year more and more grain is grown in Alberta with a consequent inroad into the ranching region. It was this development which prompted us to take up homesteads. Another brother joined us and we have now acquired between us, through due performance of the homestead duties, a clear title to 480 acres, or 160 acres apiece. Each of these three farms is worth to-day about £500, and before many years are passed each will be worth £1,000. We still have our herd of cattle, but we are giving our attention more and more to grain crops, chiefly barley. We have built ourselves a more comfortable house, and the future is fairly bright, though, as I have already intimated, we have not become intoxicated with prosperity. We have watched the railway creep from Lacombe, on the main line from Calgary to Edmonton, to Stettler, a place only twenty miles from our homesteads. During the winter just passed we were invited to a number of parties and dances, and with schools springing up all round us we are beginning to feel ourselves once more within the pale of civilisation.

The problem of the homesteader has been for years, and is still to-day, the problem of chief human interest in Western Canada. The problem is a fairly obvious one. First come first served is the rule of the Government. At any given time the available homesteads are from forty to sixty miles from a railway, though before the homesteader has

completed his homestead duties the railway may be within twenty miles of him or nearer. "Then the railway came" is a psychological moment with most Canadian farmers, a moment to which heroic struggles led up and from which everything else dates. Homesteading cannot be done without capital, though, in truth, it has often been done with marvellously little. There is also a condition imposed by the Government that the homesteader must build a house on the homestead and break, or plough, fifteen acres in each of the three years. For six months of each year the homesteader can, of course, sell his labour. A friend of mine, a master of arts of Edinburgh University, left his wife and four children on a homestead in the Province of Saskatchewan in order to work during those six months on a Winnipeg daily newspaper. Homesteaders are to be found everywhere throughout the Canadian West, behind lunch counters and bars, in shops and offices, as elevator attendants, hotel clerks, or even following the theatrical profession.

Necessity, the mother of invention, has suggested many expedients to the homesteader enabling him to dispense with the handling of actual cash. He will, for instance, work for a neighbouring farmer who is little more advanced than himself, in return for the use of that neighbour's farm machinery, horses or oxen. He will, again, arrange with a neighbour for the breaking of the fifteen acres of the homestead required annually for three years by the Government, allowing the neighbour to sow and reap a crop on the fifteen acres so broken. Or the arrangement may be such that the crop is shared by the homesteader and his neighbour. In the Province of Alberta, which hitherto has been more devoted to ranching than to grain growing, the homesteader usually enjoys squatting rights on neighbouring and unsold land. It is a common practice for the Alberta homesteader to receive from a neighbouring rancher from twenty to thirty head of young cattle and a bull on the following system of shares. The homesteader agrees to attend to the cattle for three years, at the end of which the rancher takes back his original stock. If any have died during the three years they are replaced from the increase. The remainder of the stock is then divided equally between the rancher and the homesteader.

In Alberta, as I have said, the great ranches are being steadily invaded by the grain-growing homesteaders. In the United States this same inevitable process is in a more developed stage, but there, unfortunately, it has not taken place without fierce feuds and many bloody reprisals. In Alberta the movement is entirely a peaceful one. The Alberta ranchers are themselves beginning to grow grain and there is little doubt that this steady change from exclusive ranching to mixed farming will be beneficial to the country at large. The cattle, instead of being shipped *en masse* at one season of the year, as has been

the case hitherto, entailing the depression of the market, will be shipped steadily throughout the year. In that way the farmers will receive better prices for their cattle, for not only will the position of the farmers, as sellers, be economically stronger, but the condition of the cattle will be improved under the system of mixed farming. A movement towards mixed farming is also to be noted in the Provinces of Manitoba and Saskatchewan, where hitherto intensive grain-growing has been the rule, to the deterioration and impoverishment in many cases of the soil.

In conclusion, I would urge all Englishmen in whom the lure of Western Canada's prairies is strong to consider the matter frankly and fully and in all its bearings. Life in Western Canada is rigorous and it is often heroic. That is the simple truth in spite of the Government's literature, which tells the truth but does not tell the whole truth. There are few interests in Western Canada either for the farmer or for the townsman outside their work. A country in the violent throes of development has little time for contemplation or for appreciation of the beautiful in its many forms. Pioneer life calls for men and women of strong nerves, endurance and hopefulness. The reward of persistency is correspondingly great. In no country in the world is the return for early struggle and temporary hardship more certain or more abundant than in Western Canada. This holds good for men of ordinary powers and ordinary talents. For men of extraordinary strength and exceptional foresight the prizes are so much the greater.

Western Canada offers the disinherited of the United Kingdom the glorious privilege of being independent. There is no essential virtue in the country beyond that. Its beauty, though rare and subtle, makes no immediate appeal, and although one meets cultured men and women at the most unexpected turns, the general level of culture and refinement is not high. Whether a man will succeed in Western Canada or whether he will be one of the cruelly disappointed, depends largely, one might almost say wholly, upon his mental attitude towards the country. If he is for ever hankering after the joys and comforts of closely settled Britain, he will probably swell the army of those who write to the home paper and say that Canada is a delusion and a snare. If he set greater store on a larger liberty, or definiteness of aim and purpose, on opportunities for the exercise of his latent powers, on pure air and a bracing climate, he will never regret throwing in his lot with the young and growing nation on the other side of the Atlantic.

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The Dent de Satarma.

In the Shadow of the Matterhorn.

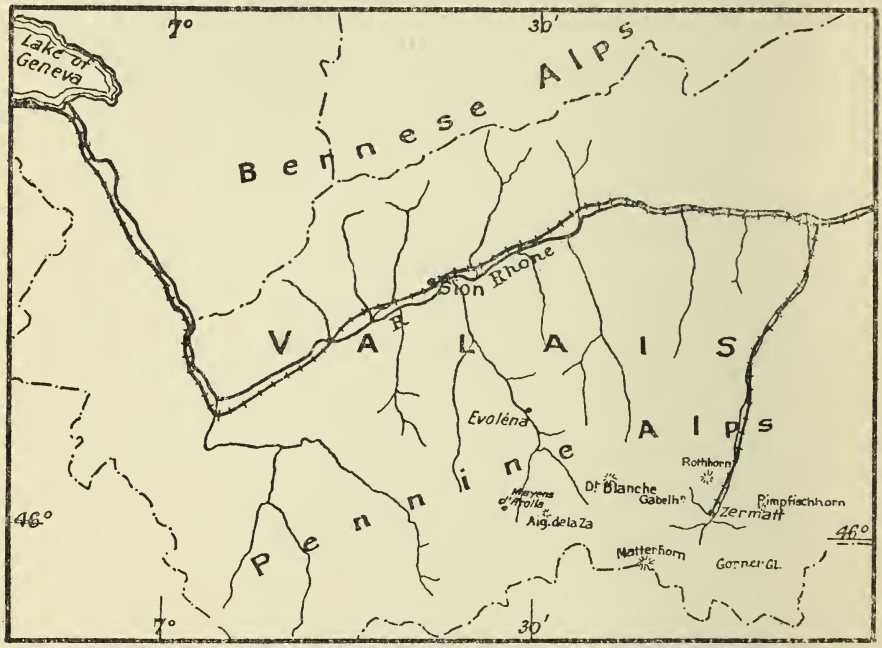
By GEORGE D. ABRAHAM.

Avalanches are usually considered the mountaineer's grimmest enemy. Yet it is not always so. I owe the discovery of the grandest approach to the heart of the greatest Alps to one of these calamities.

It was early summer time, and a party of three of us was bound for Zermatt, that little village which reposes so snugly at the foot of the glorious Matterhorn. As our train threaded the intricacies of the Rhone Valley the official on board came along to inform us that the Zermatt Railway was carried away for some considerable distance by a newly-fallen avalanche. This apparently meant a day's delay. Thus a companion's suggestion to leave the train at Sion in order to explore the recesses of the Evoléna Valley and then cross over the intervening peaks to Zermatt met with universal approval. We acted accordingly, and the next few days had practically no dull intervals.

After some delay we secured at Sion a prehistoric-looking carriage, with a horse to match, to convey us as far as the road permitted into the heart of the mountains. First of all came a long hill nearly two thousand feet high, which led out of the Rhone Valley. Regard for the welfare of our steed, and perchance the recollection of seeing a motor car run backwards down a mountain road a few days previously, made us gladly walk up the steep, dangerous-looking gradient. An hour and a-half later we entered the more level upper valley, and were able to avail ourselves of the discomforts of our carriage. The apology for a road trended gently upwards along the right-hand side of the narrow, gorge-like valley, with beetling crags above and a torrent-filled chasm a thousand feet deep below. At the most dangerous parts the wobbly wheels of the ramshackle conveyance came suggestively near to where the roadside dipped over into space, and we had uninterrupted views of the shortest ways down to the torrent. We were all nervous except the driver, and he comforted us by pointing out the place where a carriage had fallen over and hung suspended above the precipice by catching in a tree. However, in the early evening we reached Evoléna safely, and gazed with pleasure on the great peaks looming grandly in the twilight above pine-encircled chalets and a welcome hotel. The huge spire of the Dent Blanche, bathed in the last gleams of the Alpine afterglow, towered proudly over the lower slopes ; its cruel-looking outline seeming to recall that terrible calamity of 1899 whereby my friend, the greatest of English rock-climbers, Owen G. Jones, lost his life, with three local guides.

Early next morning we walked up a still higher branch valley to Arolla, and on the way scrambled up to the right of the track to climb the Dent de Satarma. The ascent of this curious pinnacle proved somewhat of a gymnastic feat, and on the upper part the situation was distinctly thrilling because of the scarcity of hand- and foot-holds. The great cliff on the right slanted straight down to the pine-clad pastures in an impressively sensational manner, and, this being our first climb of the holiday, we clung almost too carefully to the small hand-holds which were just large enough to make one realise that he had a life to lose. The descent safely completed, we scrambled down across the slopes



until the hotels at Arolla were within hail, and after the usual commissariat details, present and future, had been dealt with we retired to rest.

Arolla is situated about seven thousand feet above sea-level, with splendid peaks on every hand. It is a favourite resort of those of our countrymen who prefer guideless climbing ; in fact it might well be called the Englishmen's playground, continental climbers being conspicuous by their absence. The Pigne d'Arolla (12,471 feet) and Mont Collon, only a few feet lower, are the popular snow-climbs, while the Aiguilles Rouges, the Dents des Veisivi, and the Aiguille de la Za provide the

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437] On the way to the Bertol Hut.

favourite rock-climbing problems. It was our intention to attack this latter famous Aiguille on our way over to Zermatt by the Col d'Hérens, and we engaged a porter to assist in the transit of our camera and other heavy luggage to the Bertol Hut, where we proposed to spend the night.

We were a merry party that June morning, but Old Sol gradually scorched our enthusiasm, and lack of training made us perspire copiously. Above the snow-line the conditions were distinctly sloppy, and later in the day the surface of the glacier below the hut was in a dangerous condition. There were several snow-covered crevasses to negotiate, and our heavy porter, with a great load of luggage on his back, unintentionally explored the interior of one of these. He fell through the soft snow so suddenly that two of us were nearly pulled along with him into the chilly depths of the glacier. Being next on the rope I involuntarily had an appalling view into the blue-black depths of the crevasse where the unfortunate porter dangled, yelling for help and, sad to relate, swearing volubly in German, French, and English. His rescue proved somewhat difficult, but by lowering a spare rope on which he was able to pull, and all hoisting with a mighty heave on the rope around his waist, we landed him safe but sore out of his trying position.

After continuous floundering through the soft snow we reached the hut in a soaked condition, so we hung our wet garments out to dry on the hot rocks, and took a prolonged sun-bath in our "birthday clothes." The rest of the afternoon was spent in photography and enjoyment of the magnificent views around the hut.

The Bertol Cabane, to give it its full title, is the highest hut in Switzerland. It is perched on a small island of rock which peeps out of one of the biggest glacier systems in the Alps. In the evening, thick, heavy clouds shut out the sunset, but a rosy gleam pervaded the vaporous veil, and the weather prophet promised a fine day for the morrow. We were astir at two a.m. next morning, and gazed somewhat disconsolately on the black, mist-shrouded solitudes ; but the barometer continued to rise and our spirits followed its example. Half-an-hour later we had disposed of breakfast by lantern light, and clambered down the rope which has been placed to facilitate the descent from the hut to the glacier. The compass bearings had been carefully taken the previous evening, so, after roping together, we set off confidently across the vast, trackless snowfield, which was now frozen hard and firm.

In a short time we reached the base of an intervening ridge of rock, and in the dense gloom scrambled up a long snow-filled gully, where the dislodgment of some loose rocks kept the tail-end of the party very much alive, to judge from the vigorous wagging of their tongues. Ere long we emerged on the higher snowfield, and a weird, greyish light augured the approach of dawn. Onwards and upwards we trudged, skirting the

edges of black, fearsome crevasses, and at times taking flying leaps across the narrower rifts, a somewhat eerie proceeding in the uncertain light. Just when a heated discussion was in progress as to our whereabouts, rays of pale sunlight filtered through the mist, and with astounding suddenness the great cloud curtain sank downwards and our wondrous surroundings were revealed in all their glory.

Straight ahead, and apparently close at hand, our *objectif*, the Aiguille de la Za, rose like a huge church spire, its weathered slabby sides slanting upwards to a slender, mist-wreathed summit in a way that appealed irresistibly to our rock-climbing instincts. Away to the right and behind us the scene was so magnificent that adequate description is impossible. The Dent Blanche reared itself like a great, black monster in the track of the rising sun, and fleecy wisps of mist hovered gracefully over the fields of everlasting snow, with the unmistakeable peak of the Matterhorn now and again pushing its tapering crest through the vanishing clouds. Far away beyond stretched a veritable sea of mountains, and for several minutes we gazed speechless on the sight.

After a short second breakfast we scrambled up to the great cockscomb-like ridge which rose above us and evidently led to the actual base of the Aiguille. On arrival we found the crest of the ridge narrow enough to require considerable care and attention. There was a fine sense of lofty exhilaration as we slowly climbed and crawled along the rocky ridge-pole of the mountain, with the sunny precipice on the one hand and on the other the deep, dark abyss of the Arolla Valley, where night still lingered. Fleecy clouds floated lazily upwards, and now and again the spectre of the Brocken flickered faintly amidst the vapour. But these wonderful effects were soon forgotten in the excitement of the ascent. The last five hundred feet of the Aiguille were almost vertical, and the small hand- and foot-holds were often masked in ice. Up and up we went, now gripping the narrow ridge, with its knife-like edge, now wrestling with some overhanging buttress or clinging affectionately to the great exposed precipice, with thousands of feet of airy space between us and the tiny chalets of Arolla far below.

The ascent of the final section was enlivened by an exciting incident. I had reached the shattered rocks close to the summit cairn, and was carefully taking in the rope while the second climber picked his way slowly up the steep precipice. Suddenly there was a surprised cry of warning, and at the same moment I felt a violent pull on the rope. Fortunately this was minimised by the friction on the rocks over which the "life-line," in the truest sense of the word, passed, and I was able to peer over the edge at the cause of the trouble. There my friend hung, practically in space, with a great mass of rock tilted forward from the cliff and resting on his shoulder and arms. He clung to the mass

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A Cloudy Sunrise on the way to the Aiguille de la Za.

with the strength of desperation, for our two friends directly below were in dire peril. They quickly realised that absence of body is even as useful as presence of mind in such a dilemma. Without stopping to argue the point they moved along a narrow ledge to the left out of the line of fire. Then our long-suffering companion let loose the piece of the Aiguille, and it went crashing down upon the very ledges they had recently vacated, to disappear finally over the great precipice, whence arose the tumultous roar of the augmenting avalanche.

When we had recovered our equilibrium after such a narrow escape, we scrambled steadily upwards and foregathered on the summit. The view was somewhat spoiled by the clouds, which increased rapidly with the warmth of the morning sun. Now and again the peak of the Matterhorn thrust its cruel-looking crest through the vapour, and even more impressive seemed the snowy peaks of Mont Collon and the Pigne d'Arolla when disclosed to our appreciative gaze.

The descent was achieved without incident, and in the afternoon we trudged across the vast snow-fields and over the Col d'Hérens, with the tooth-like arête of the Dent Blanche on the left and the Dent d'Hérens on the right, while the stupendous cliffs of the Matterhorn dominated all in magnificence and grandeur. The setting sun saw us threading our way through the pine woods near the Staffel Alp, and Zermatt with its aggressive smells and other signs of civilisation was reached before darkness set in.

The following morning the view from our bedroom windows embraced only a mist-swathed valley. We appreciated, and in this case approved, the fickleness of Alpine weather, for after the hard work of the previous day we were ready for a day of rest. At sunset prospects brightened, our old friend of a previous holiday, the Matterhorn, standing out sharp and clear in an almost cloudless evening sky. Accordingly we made arrangements to tackle next day one of the most difficult climbs in the district, the Riffelhorn by the famous Matterhorn Couloir. Much snow had fallen on the upper rocks, and the guides smiled negatively when we suggested that one of them should join us. They looked on our task as hopeless. Their discouragement made us all the keener for the fray, and a somewhat wide experience of difficult rock peaks under bad conditions made us hopeful.

Early next morning Zermatt was far below ; we were busy threading the intricacies of the great ice-fall of the Gorner Glacier, which afforded the most interesting approach to the foot of the couloir. The shattered ice was twisted and riven into a maze-like system of crevasses, where the glacier pushed itself through a gorge between the peaks and over a small precipice. Now we were down in the depths of some yawning crevasse, and anon clinging to its slippery slope or crawling carefully across

a frozen snow-bridge that spanned the blue-back depths of some icy gulf. The Riffelhorn towered over our heads four times the height of St. Paul's, and a vertical rift in the huge precipice split the peak practically from base to summit. This was unmistakeably our route, and we soon fell, or rather rose, to work in real earnest.

The climbing was more difficult than that usually encountered in the Alps, for hand- and foot-holds were hard to find, and in some places the rocks overhung. One section about two-thirds of the way up is indelibly fixed on my memory. The bed of the couloir had become so steep that we could scarcely find holding room in its recesses, and a great bulge of overhanging rock just above us made it necessary either to leave the friendly crack and climb the giddy, exposed precipice on the left or beat a retreat. I well remember pushing carefully out on to that almost holdless cliff and crawling like a fly on a fly-paper, if a companion's homely simile may be pardoned, up the huge, firm rocks. These favourable conditions altered fifty feet higher, and I found myself confronted by a smooth impossible stretch about twelve feet high. Defeat seemed certain, but my brother boldly offered to come up to me and hoist me to where hand-holds could be gained.

Then followed some exciting moments. Fortunately my human footstool was not weak in the head ; but hob-nailed climbing boots are stubborn facts on the hardest of heads, and it may truthfully be said they leave a good impression behind them. To add to the sport a sudden snow-squall enveloped us, but it had at least the merit of blotting out the thousand foot drop to the surface of the Gorner Glacier away below. At last I was able to grasp the firm holds and swing up to good ledges which led back to the couloir above all serious difficulty. Aided by a slight assistance from the rope the others scrambled up brilliantly. The ascent was completed in quick time, for near the summit the storm cleared and we had a splendid climb up the interesting rocks which formed the final section. After a halt to enjoy the glorious prospect, with Monte Rosa and the Matterhorn dominating all in magnificence,we rattled down the comparatively easy side of the mountain and reached Zermatt in time to conform to the laws of dinner-time respectability.

Settled weather then ensued for many days, and we made successful attacks on the Gabelhorn, Monte Rosa, the Rimpfischhorn and the Rothhorn. The latter peak was our final expedition, and it nearly proved to be the finale in another sense. We had with us to carry our camera a youthful Zermatt porter, who seemed to have an utter disregard for the value of human life. At the outset he surprised us by refusing to be roped to the rest of the party. It was impossible to take his refusal seriously, for to look upon his healthy, perpetually-grinning face was a continual feast of humour. Even when he disappeared bodily in a

snow-hidden crevasse he was able to shout "Courage, messieurs!" and after lowering our rope we hauled him out of his dangerous dilemma along with "the smile that wouldn't come off." However, after this he was more amenable to discipline, and came on to the rope; and all went well until we were descending the fairly steep snow-slope leading to the lower rocks above the Trift Glacier.

Here, before we realised the danger, our porter took a mad jump on to the slope and set off glissading downwards. Being roped we had perforce to follow. All travelled gloriously for some distance, but suddenly an icy section intervened and the slope steepened. Then the porter, who was leading the wild rush, lost his balance and went flying downwards in a confused heap. We all followed suit ignominiously, and would doubtless have accompanied the smiling one down a thousand-foot precipice to the glacier had not some softer snow fortunately intervened, where the amateurs braked the party by means of their ice axes. Then we stopped and gazed gaspingly below. Another fifty feet and nothing could have saved us, and we should have shared the fate of two German climbers who were flung over the precipice and perished there a few days later. Several lives have been lost on that slope which looks so harmless from above, and not very long ago a party of Englishmen repeated our narrow escape. However, save for a few bruises we were no worse, but only the wiser for the escapade, and even our Zermatt friend behaved himself reasonably during the rest of the descent. Two days later we left Zermatt far behind and were skimming the green plains of France, homeward bound.

TRAVEL-LITERATURE

Native Life in East Africa.

THE virtues and some of the defects of the German scientific explorer—his patience, indefatigable industry, and methodical methods of working, as well as sometimes the clumsy bluntness with which he seeks from the natives information about their most intimate modes of life and thought—find interesting illustration in Dr. Karl Weule's *Native Life in East Africa* (Sir Isaac Pitman and Sons ; 12s. 6d. net). Dr. Weule, who is Director of the Leipsig Ethnographical Museum, went out to German East Africa in the early summer of 1906 with the object of examining ethnographically, on behalf of the Committee for the Geographical Exploration of the German Colonies, the country between Kilimanjaro and the Victoria Nyanza. After his arrival the outbreak of trouble with the natives led to an official embargo being placed on the execution of this programme, and Dr. Weule accordingly turned his attention to the southern portion of the Protectorate. In the course of some half-a-dozen months he carried out an interesting journey from Lindi to the banks of the Rovuma River, which forms the frontier between German East Africa and Portuguese East Africa, afterwards returning to Lindi by a different route. Naturally in this time he could not hope to gain a very close acquaintance with the inner working of the minds of the natives, but he collected much curious information about their manners and customs, and formed a valuable ethnographical collection, besides obtaining a large number of photographs and numerous cinematograph and phonographic records. Special attention was paid to the collection of native songs, or chants, several of which are reproduced, the music as well as the words being given. Great pains were also taken to encourage the natives to exercise their artistic faculties, and some of the resulting sketches reproduced in the book are very amusing.

One curious characteristic of the natives which Dr. Weule brings out is their inferiority to Europeans in respect of their ability to concentrate their strength on one particular object. He was furnished with a dynamometer, which afforded his followers a much-appreciated means of testing their strength. Although Dr. Weule does not pose as being in any way a "strong man," he was able to force the indicator far beyond the limit reached by the greatest efforts of any of his followers. "In fact," he says, "we Europeans, as far as the *spontaneous* putting forth of strength goes, are as giants compared with the African. I made fairly careful records of the figures for each man, not once only, but in several successive trials, so that no allowance need be made for novelty or want of practice, but how inferior they are to us ! None of them could compass a greater pressure than thirty-five kilos. with the right hand and twenty-six with the left, with the exception of one man, who attained to something over forty kilos. ; while I, even here in the damp heat of the coast region, can still manage over sixty with the right and over fifty with the

left. And yet nearly all my men are professional carriers, sturdy fellows with tremendous chest measurement, broad shoulders, and splendidly developed upper-arm muscles."

Summing up the results of his observations, Dr. Weule takes a more favourable view of the native than might be supposed from the general tenor of his book. The black man, he says, is pronounced by some "an untrained child," by others "utterly depraved and incurably lazy." Yet the most numerous tribe in German East Africa are the Wanyamwezi, who are estimated at about four million souls, and "no one has yet ventured to doubt their industry or their capacity for progress; they are excellent agriculturists, and at the same time they were, for a whole century, the mainstay of the caravan trade between the coast and the heart of the continent. . . . . What is true of the Wanyamwezi is also true of many other tribes." Moreover, Dr. Weule writes: "In all the months spent among the natives of the Rovuma Valley, I never discovered any reason why we should, as we are so fond of doing, associate the idea of absurdity with the African. On the contrary, the behaviour not only of the elders but of the liveliest of the young people in their intercourse with Knudsen and myself, was characterised by a quiet dignity which might well have served as an example to many a European of similar social position."

A special word of praise must be given to the translation of Dr. Weule's book from the German by Miss Alice Werner, who herself is no mean authority on African ethnology. Miss Werner supplies a long and critical introduction, and throughout the book contributes instructive notes on some of Dr. Weule's statements. The volume is profusely illustrated from photographs and drawings and is furnished with a good map.

Life in the Middle East.

As the wife of a medical missionary, resident first in northern Persia and then in Mesopotamia, Mrs. Hume-Griffith has enjoyed exceptional opportunities of acquiring an insight into aspects of the life of those countries which are shut off from the male traveller. Ignoring politics, and even the discussion of missionary work and problems, she has given in *Behind the Veil in Persia and Turkish Arabia* (Seeley & Co.; 16s. net) a series of pleasantly-written chapters describing the conditions of personal and domestic life in the towns where she and her husband have been stationed. One or two extracts will perhaps give the best idea of the character of the book, which is illustrated by a number of reproductions of photographs and a map.

While in Kerman, Mrs. Hume-Griffith was told an amusing story to illustrate how loth the mullahs are to give anything away. "The scene is a large pool of water, in it a mullah struggling to reach the bank, and in danger of drowning. A passer-by, seeing his distress, runs to his aid and cries, 'Give me your hand, oh my lord, and I will pull you out.' 'No, indeed,' answers the mullah, 'I have never yet given anything to anyone, and I certainly will not begin now.' The kind passer-by, not liking to leave the mullah in his sad condition, tries to think of another way out of the difficulty. Suddenly a bright idea strikes him, and, running to the priest, he calls out, 'Will you *take* my hand, then,

oh my lord ?' 'Gladly,' says the mullah, and allows himself to be drawn out of his perilous position."

Mrs. Hume-Griffith draws a terrible picture of the conditions under which the carpet-weaving industry is carried on in Kerman. "The children are taken on as 'weavers' when very young, some even starting when five or six years old. Their hours of work are from sunrise to sunset in the summer, and until two or three hours after sunset in the winter, and they are paid at the enormous rate of about 2d. a day, sometimes starting with even less, whilst learning the work. The consequence of this abominable sweating system is that to-day there are hundreds of little children in Kerman, from eight to nine years of age, confirmed cripples from rheumatism and other diseases. From sitting so long in one position, while still of tender years, amid such damp surroundings, their little feet and hands become knotted and deformed. They can no longer earn their daily bread, so perforce must help to swell the great multitude of beggars who throng the streets and bazaars of Kerman. I once saw a little girl about seven years old sitting by the roadside just outside our house. On asking her why she was sitting there all alone, her reply was, 'Mother sent me to my work (carpet-weaving), but my feet hurt me so, I can't walk.' She was waiting there whilst a companion in work and sorrow ran to try and find some one who would carry her friend to the workroom."

On the other hand Mrs. Hume-Griffith judges that, on the whole, the children of Mosul on the Tigris have a very good time. According to Western ideas they are hopelessly spoiled. "I have seen a room full of people all in despair over a child of perhaps two or three years old who refuses to drink his medicine ordered by the doctor. The father begins the performance by solemnly taking the glass containing the medicine up to the child, and saying to him, 'Oh, my beloved, *will* you take this medicine ?' 'No,' says the child, and pushes it away. The father looks round on the audience for signs of wonder and astonishment at the marvellous doings of the child. Then perhaps the uncle has a try, and with like success; then the mother, the aunts, and a few friends all beseech the child to take the medicine, saying 'For my sake, for the sake of your father, your mother, etc., take this,' but, of course, all are unsuccessful, and they all shake their heads and say, 'I told you so, he will *not* take it,' and it being a 'khatiya' (sin) to force a child to do anything against his will, the child, of course, gains the victory in this as in everything else. If you suggest pouring the medicine down the child's throat by force, the parents and friends will put you down as being a monster of cruelty."

The Traveller's Vade Mecum.

Mr. Roger Pocock has compiled and edited on behalf of the Council of the Legion of Frontiersmen a volume which embodies in surprisingly small compass a vast amount of information which should be of great value to all travellers and settlers on the outskirts of civilization. Though containing nearly five hundred pages, the *Frontiersman's Pocket-Book* (John Murray; 5s. net) will go comfortably into the pocket. It is printed in good readable type, and is strongly bound. The multitudinous subjects dealt with in the volume are arranged under five main heads: the training of frontiersmen; means of

travel; collective training; morale; and simple medical and surgical treatment in the absence of a doctor. Each of these main divisions is divided into ten or a dozen sections, each written by one or more experts, and containing practical hints on such subjects as path-finding, the preparation of food, transport animals, scouting and reconnaissance, camps and expeditions, and hygiene. Altogether some seventy persons, each an authority in his own particular line, have contributed to the volume. Here and there, perhaps, the volume has the defects of its comprehensive character, an article of little more than a page, for instance, by Sir Frederick Lugard on "Administration" being obviously too limited to deal at all adequately with the subject. On the whole, however, the volume is crammed with sound and practical information, the value of which is materially enhanced by numerous simple sketches illustrating the methods recommended.

Miscellaneous.

The "Queen" newspaper *Book of Travel* (Horace Cox; 2s. 6d. net) has now reached its sixth year of issue. Compiled by Mr. M. Hornsby, the Travel Editor of the "Queen," it gives particulars of the principal tourist centres in the United Kingdom and various European countries, together with practical hints for travellers in each country, and the outline of a number of specimen tours. Hints are also given on travel in other parts of the world, though no particular method seems to have been followed in selecting the countries and places dealt with, Chili and Siam being included, but not Japan or South Africa. Not the least valuable feature of the volume are the general lists given at the end of foreign currencies, weights and measures, routes and fares from London, etc. There are seventeen maps and twenty-seven illustrations.

Mrs. E. R. Whitwell's *Through Bosnia and Herzegovina with a Paint Brush* (Simpkin, Marshall & Co.; 6s. net) is a slim little book of less than eighty pages, printed in large type, composed of personal reminiscences of a holiday mingled with scraps of guide-book information. It is written in a very loose style, and the best part of the book are the illustrations, which comprise sixteen reproductions in colours of paintings by the authoress.

Mr. Edward Stanford has published a second edition of the volume devoted to Southern and Western Asia in his admirable Compendium of Geography and Travel. The work has been thoroughly revised and brought up-to-date by the author, Dr. A. H. Keane, and with its numerous excellent maps forms a most useful work of reference that should be in the hands of all who are interested in the countries stretching from Palestine to Indo-China. The price is 15s. net.

From Mr. Edward Stanford we have also received a map of the Chinese province of Fu-Chien, opposite to the island of Formosa, compiled and produced by the Geographical Department of the General Staff of the War Office. The map shows rivers and place-names, and the great number of the latter gives a good idea of the thickly-populated condition of the province. It is accompanied by a handbook giving the Chinese characteristics and pronounciation for the names shown on the map. The price of the map is 1s. 6d., or with the handbook 2s.

THE EXPLORING WORLD

Royal Geographical Society.

The Royal Geographical Society's House may not unfitly be regarded as the Mecca of British explorers the world over. The Society has now been in existence for all but four score years, and during that time has found a home in various buildings. To the present generation of explorers, however, the house at No. 1, Savile Row, has been the Society's abiding place as long as they can remember. One or two veterans there may be, like Sir Clements Markham, who can recall the time when the Society was housed in Whitehall Place, and held its meetings in the theatre of the United Service Institution. But it is now nearly forty years since the freehold of the house in Savile Row was purchased for a sum of £14,257, and in the minds of most geographers and explorers the Society is inseparably associated with its present home adjoining Burlington Gardens. Since it first took up its quarters there, the Society has grown and flourished exceedingly, but with growth has come the penalty of need for larger premises. Forty years ago the Fellowship was only 2,387 strong; today it is nearly double that strength. In the same period the Library has practically trebled its size, the number of volumes and pamphlets now falling not far short of fifty thousand. The Map Room—which is open to the public in consideration of the grant of £500 a year which the Society receives from the Government—now contains a collection of over one hundred and twenty thousand sheets of maps and nearly thirty thousand photographs and slides. Several schemes for securing the desired increase of accommodation, either on the present site or elsewhere, have been drawn up in the last few years, but nothing definite has yet been decided. It has been estimated that the cost of erecting a new building on a new site would be not less than £120,000. The value of the present house in Savile Row has, of course, increased greatly since the Society purchased the freehold in 1870, and would probably realise at least £50,000. Whether or not removal be decided on, the provision of larger premises must be a costly business, and after long deliberation the Council has decided to create a building fund, to which Fellows and others are invited to subscribe. Whatever scheme may ultimately be adopted, it is hoped that it will provide for the inclusion in the new premises of an "Explorers' Hall," designed both to commemorate British explorers and to serve as a lecture hall.

Captain Mikkelsen's New Expedition.

Once a man becomes thoroughly imbued with the spirit of exploration, he finds it difficult to settle down to anything else. By profession Captain Einar Mikkelsen is a sailor, but since his return from Arctic North America he has shown no inclination to return to the mercantile marine. First he conceived the idea of undertaking an expedition for the exploration of the large unknown areas of Dutch New Guinea, and when that failed he turned his thoughts to Greenland, and formulated plans for the recovery of the diaries and other records which are supposed to have been left in the far north-east by Mr. Mylius Erichsen before his last fatal march in

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447] [Dobbs, Nome, Alaska, Phot.

Captain Einar Mikkelsen.

the autumn of 1907. This is an object which naturally makes a strong appeal to the patriotism of the Danes, for Mr. Erichsen's expedition was in the nature of a national enterprise. In a very little time Captain Mikkelsen has obtained half the funds he requires by private subscription, and the other half has been granted to him by the Danish Government. Access to the east Greenland coast is practically always obstructed by heavy pack ice, so that the initial conditions of exploration on that side of Greenland are much more difficult than on the west. Captain Mikkelsen, however, is not without experience of the obstacles that lie before him, his first experience of exploration in the Arctic regions having been on the east coast of Greenland in the year 1900, under Lieutenant Amdrup of the Danish Royal Navy. The next year found him a member of the first North Polar expedition financed by the late Mr. Ziegler, America's "Baking-Powder King," and it was then that he met Mr. Leffingwell, who shared with him the leadership of the unfortunate expedition on board the *Duchess of Bedford* through Bering Strait to the northern shores of Alaska.

Plan of Campaign.

Captain Mikkelsen proposes to start on his new expedition towards the end of June or early in July. His demands on his supporters have not been extravagant, and, like Captain Roald Amundsen, who sailed through the North-West Passage with half-a-dozen companions on board a herring boat, he will content himself with a small vessel of about forty-five net tons, manned by a party of seven all told, including himself. At the Faroe Islands fifty dogs for sledging purposes, brought from Greenland, will be taken on board, and the vessel will then steer a north-north-westerly course so as to strike the pack ice in about seventy-four or seventy-five degrees north latitude. Forcing a passage through the ice, still in a north-westerly direction, Captain Mikkelsen hopes to strike the east coast of Greenland near the winter quarters of the *Danmark*, Mr. Erichsen's ship, adjoining Cape Bismarck, just south of the seventy-seventh parallel. There, after such preliminary work in the way of laying out depôts, etc., as may be possible in the autumn season, the expedition will settle down for the winter. In the spring of the year will be undertaken the journey northwards by means of which Captain Mikkelsen hopes to discover the missing records of his ill-fated predecessor. These are supposed to have been left on the shores of Danmark Fjord before Mr. Erichsen and his two companions, Hagen and Brönlund, began their terrible journey over the inland ice. Captain Mikkelsen proposes to follow the coast from his winter quarters up to Lambert Land, north of the seventy-ninth parallel, and thence strike across the inland ice over the great peninsula which forms the north-eastern extremity of Greenland to the head of Danmark Fjord, in nearly eighty-one degrees north latitude. The northern shores of the fjord will then be followed up to Cape Rigsdagen, in eighty-two degrees north latitude, and if Captain Mikkelsen finds the depôt for which he will be looking, and the ice conditions are favourable, he may continue the journey westward through Peary Channel along the northern shores of Greenland.

Mr. Shackleton's Expedition.

Thanks to the great length of the cablegram which Mr. Shackleton despatched to this country immediately

on his return to New Zealand, the Australian and New Zealand papers that have since come to hand contain few material additions to our knowledge of the work accomplished by the expedition. A long interview with Mr. Shackleton, however, supplies a more detailed account of his great journey towards the South Pole, and this abundantly confirms the views expressed by Mr. L. C. Bernacchi in the May number of *Travel and Exploration* respecting the great importance of ample food supplies on long sledging excursions in the polar regions. All Mr. Shackleton's supplies had been carefully selected in London, and proved to be thoroughly satisfactory, the experience of the expedition in this respect being in happy contrast to the experience of the national expedition on board the *Discovery*. Professor David, who was accorded a great ovation on his arrival in Sydney, has borne testimony in his accounts of the expedition that from first to last there was not any trace of scurvy exhibited by any member of the expedition, and it is a tribute to the freedom of the Antarctic regions from disease germs that the only occasion on which the explorers suffered from colds was when one or two bales of clothing were opened which had been packed in London. But though there was nothing to complain of in the quality of the food, Mr. Shackleton's detailed narrative strengthens the opinion that the quantity required on the sledging excursions was considerably underestimated. The only square meal enjoyed by the southern party between the middle of November and the early part of February was on Christmas Day, when even in that remote region of desolation a seasonable plum pudding managed to make its appearance. But all is well that ends well, and that the explorers have returned with abounding energy is shown by the fact that when the New Zealand mail left for England early in April, Sir Philip Brocklehurst, Mr. Mawson, and Mr. Mackintosh had gone off to make an ascent of Ngaruahoe, the volcano in North Island which has lately been in active eruption.

The Murdered German Explorers.

The dangers attending the exploration of the wild mountainous country where China proper borders on Tibet and Burma have been exemplified in the experience of several travellers in the last few years, and now find fresh illustration in the murder of two German explorers, Dr. Brunhuber and Herr Schmidt, who are reported to have lost their lives while journeying up the Middle Salwin. Dr. Brunhuber, who is a member of the Berlin Geographical Society, left Europe in the summer of last year. His expedition, which was well equipped with survey instruments and photographic apparatus, reached the Salwin by way of Burma, and before leaving Bhamo the explorers were warned that in seeking to explore the middle course of the river they were running serious risk of losing their lives. The British administration of north-eastern Burma does not at present extend beyond the Myitkyina district, the last outpost of Empire in this direction being where the Irawadi is joined by the Nmaihka, or Bad, River, in about twenty-five degrees forty-five minutes north latitude. The frontier between Burma and China is undefined beyond Manang Pum, in about twenty-five degrees thirty-three minutes north latitude, though negotiations with the Chinese for its further definition are now in progress. In the early summer of 1905 a joint British

and Chinese survey of the undelimited country took place. The British officers in charge were the late Mr. Consul Litton and Mr. H. G. A. Leveson, I.C.S. The British party carried its survey up the Salwin valley to about twenty-six degrees thirty minutes north, and later in the same year Mr. Litton and Mr. Forrest made a further journey up to about the twenty-seventh parallel. This section of the Salwin valley is occupied by the Lissoo tribes, who are continually at feud with one another, and who, though described by Mr. Forrest as of a cowardly disposition, are armed with a most deadly weapon in the form of a crossbow, firing poisoned arrows. So powerful are these weapons that it is said that an arrow from a war-bow will pierce a deal board an inch thick at a distance of seventy or eighty yards. The Lutzu tribes, among whom the German explorers are reported to have met their death, inhabit a section of Salwin valley north of the Lissoos. They are not of a warlike character, but very little is known of them or their country, though a Roman Catholic mission station has been established on the Salwin within their territory. The country was over-run by the Chinese two or three years ago, after the suppression of the great Lama rebellion in the border districts of Tibet, but the Chinese control of the country is more nominal than real, and, like the British authorities, the Chinese will no doubt disclaim responsibility for the fate of the explorers, who undertook their expedition after full warning of the risks they ran.

Travel and Sports Exhibition.

The Travel and Sports Exhibition, which will be held at Olympia in July, promises to contain many features of interest. Sir Gilbert Parker, M.P., has accepted the presidency of the Organising Committee, and several colonial and foreign governments, including the Commonwealth of Australia, the West Indies, Uganda, New Brunswick, Nova Scotia, Sweden, Denmark, Finland, and Brazil are furnishing exhibits. Numerous trophies of the chase will be on view from the Shikar Club, of which the King is patron and the Prince of Wales president, and among individual travellers who have promised to show specimens of the big game which has fallen to them in the wild places of the earth are Lord Lonsdale, Sir Henry Seton Karr, and Major C. E. Cumberland, the last named of whom has a collection of over two hundred big game trophies secured in all parts of the world. Tents and other requisites of camp life will be displayed in the grounds of the exhibition, which aims at being not only an interesting show, but a place where travellers and sportsmen can examine all the latest and best aids to travel in lands near and far. One of the most attractive features of the exhibition should be the performances of a company of amateur lady and gentlemen folk-dancers from Denmark, who are coming over at their own expense to show the national dances of their country. Those who have seen these dancers in Denmark speak of their performance in the most glowing terms. Believing that many of our readers will find it of interest to visit the exhibition, we have made arrangements for the inclusion of

A Free Ticket of Admission

in each copy of the July number of *Travel and Exploration.*

TOURIST·TRAVEL

The "T.C.F."

These initials are perhaps more familiar to the average French cyclist than the well-known initials C.T.C. are to his fellow wheelman in Great Britain. They connote, of course, the Touring Club Français, the largest travellers' club in the world, consisting of over one hundred thousand members. This wonderful organization is a far more ambitious one than the parent society, the C.T.C., which may be regarded as the pioneer of clubs for the cycling tourist. The chief aim of the T.C.F. is the thorough and systematic exploitation of France as a touring field, not only for cyclists but for all travellers by road or rail. Not only does it secure reductions on trains and boats, minimise custom-house difficulties, and provide for cheap and comfortable accommodation at innumerable inns and hotels—duties which are likewise undertaken by the C.T.C.—but it may be said to usurp the functions of many other societies and associations, one department, for instance, devoting itself to the care of historic monuments of national interest. But perhaps the greatest work, and one of the greatest value to the State, due to the Club's initiative, is the construction of that magnificent highway known as the *Corniche d'Or*—twenty-five miles of superb roadway following the grand coast outline of the Riviera from Fréjus to Cannes.

Official Enterprise in France.

There are in France no fewer than 225 Syndicats d'Initiative, of which the main object is to advertise the special attractions of each locality. Each town and commune in the particular district contributes towards the expenses of the Syndicate. With regard to their methods, they rely chiefly on attractively written and illustrated brochures, which are distributed gratuitously by the Syndicates. Then, when the stranger has been attracted to the district, the aim of the organization is to keep him there as long as possible by providing public entertainments, while by means of Bureaux des Renseignements everything possible is done to facilitate his movements and enable him to visit cheaply and expeditiously the chief sights of the neighbourhood. Many of these Syndicates spend about £2,000 annually on these objects, but the results justify the comparatively heavy expenditure. To give only one instance, the interesting mediæval city of Carcassone, too little known to English tourists, had only eight thousand visitors in 1905, but after the institution of a Syndicate the number of visitors reached seventeen thousand in the following year. The Belgian municipalities are contemplating starting similar organizations, and the 1910 Exhibition in Brussels affords a favourable opportunity for making this effort to attract tourists. With this object in view, a Belgian league for "importing gold," as one of its advocates characteristically describes it, has been formed under the presidency of Count Van Der Busch, Director-General of the Brussels Exhibition, with offices at 14, Rue de Berlaimont, Brussels.

The Homburg of Italy.

The genesis of Salsomaggiore is, in a sense, unique. Other famous and

 From "Native Life in East Africa." (See review, p. 442).

Makonde Woman in Gala Dress, showing characteristic Lip Ornament.

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popular watering places—Biarritz and Plombières for instance—owe their origin to the patronage of Royalty, or the advocacy of a well-known physician, but Salsomaggiore is to all intents and purposes the creation of an hotel—the famous Ritz Hotel-ring. Though it is now the most fashionable watering place in North Italy, yet some of its Italian supporters are not satisfied, a well-known patron declaring that had Salsomaggiore been in Germany or Austria, it would be the principal inland watering-place in the world! As a change after the social dissipations of a season at Cannes, Monte Carlo, or Rome, this retired and picturesque little spot is distinctly attractive, while its facility of access—for it is near the main line from Milan to Rome—also conduces to its popularity. All expresses stop at Borgo San Donnino, whence a light railway runs to the charming little village of Salsomaggiore, nestling among its chestnut woods.

By Rail from Colombo to Calcutta.

The project for through railway communication between Ceylon and India, which for many years has been shelved by the Indian Government, has at last received official sanction. Between the southern end of the island of Rameswaram and the island of Mannar, in the channel between Ceylon and the mainland, a distance of about thirty-eight miles, stretches an almost continuous coral reef, popularly known as the "Stepping Stones of Adam's Bridge." There have been many schemes proposed for bridging—using the word in a two-fold sense—this difficulty, one of the most plausible contemplating a viaduct from end to end. But the scheme favoured by the Government is that of a steam ferry, which would carry trains without break of bulk between Rameswaram and Mannar. However the difficulty is met, there is every probability that in a few years there will be direct railway communication between Colombo and the Indian railway system.

Polo in Abyssinia.

At present, perhaps, Abyssinia must be considered a little outside the ordinary globe trotter's itinerary, but no doubt when the long-delayed extension of the Ethiopian Railway reaches Adis Ababa the country of Menelik will soon find its way into the programme of Messrs. Cook & Son. Already a small European colony has established itself at Adis Ababa, and has formed a polo club under the direct patronage of the Emperor. The polo ground is situated about a mile from the British Legation and the Royal Palace, and is the gift of the Emperor himself, there being one curious proviso in the conveyance to the Club that half the hay should be reserved for the Emperor! The polo ground is three hundred yards by two hundred yards and is surrounded by the race course. Only ten minute chukkers are played, this being thought quite enough both for man and beast at a height of eight thousand feet above the sea.

In connection with the polo-loving proclivities of the Emperor, I heard a quaint story the other day which has not yet found its way into print. When the British Minister Plenipotentiary, Sir John Harrington, was temporarily relieved by an attaché from the British Embassy at Constantinople, the Emperor presented the attaché with a valuable polo pony. In accordance with Oriental etiquette an exchange present was expected and the young attaché was at a loss what to give, as he knew the Emperor expected something really

novel and striking. Finally he decided to have one of the new thermos flasks sent out from London, and presented it to the Emperor, who was inordinately pleased with the gift, and evidently regarded its peculiar properties as being almost miraculous.

The "Dunottar Castle" Summer Cruises.

The R.M.S. *Dunottar Castle*, which, as noted in a previous number, has been pressed into the tourist service to take the place of the ill-fated *Argonaut*, starts on a series of summer cruises towards the end of June. Many interesting associations attach to the *Dunottar Castle* (it was on this vessel that Lord Roberts sailed for South Africa at the crisis of the war), and it has the advantage of its size that its two dining saloons will accommodate all passengers simultaneously, obviating the invidious custom, necessarily observed on some cruising steamers, of having lunch and dinner in two relays. The first cruise, covering twenty-one days (June 26th to July 16th) and costing eighteen guineas, will be to the North Cape and the Norwegian Fjords. This will be followed by two shorter cruises, starting on July 17th and July 31st, the cost in each case being eleven guineas. Towards the end of August there will be another eighteen-guinea cruise, this time to the Northern Capitals (Christiania, Stockholm, Copenhagen, and St. Petersburg).

Tourist Jottings.

The amateur golf championship of Austria will be decided at the Golf Tournament at Carlsbad on July 21st. The International Tennis Tournament begins a week earlier.

The first Swedish exhibition of art and art industries will be held in the Royal Deer Park at Stockholm from June to September.

A colossal improvement scheme, estimated to cost no less than £5,000,000, is embodied in an official report recently issued by the Paris Municipality. The project is to create a large park, completely encircling Paris, to take the place of the obsolete fortifications, which it is proposed to pull down.

It has been calculated that two and a-half million passengers cross annually from Europe to America. To cater for this enormous number of voyagers a permanent sea population of fifty thousand men and women is required, and it is calculated that a ship like the *Lusitania* or *Mauretania* costs about £40,000 each round trip.

A novel departure has recently been sanctioned by the Russian State Railway in allowing railway carriages to be used as hotels. Foreign manufacturers having complained of the difficulty their travellers experience in finding hotel accommodation at provincial towns, the railway department has authorised the trains stopping over night at towns visited, and the cars being used as dormitories.

A museum has recently been opened at Moscow containing relics of the disastrous Russian campaign of 1812. Perhaps the most interesting relic is the printing press used by Napoleon during the campaign. The machine is made of solid mahogany, and can be taken to pieces. After the retreat of the French army, the press was sold by auction at Moscow, and eventually came into the possession of a printing establishment at Vologda.

EUSTACE REYNOLDS-BALL.

MOTORING IN MANY LANDS

Touring in the Transvaal.

I have had a very interesting account from Mr. Frank Whittaker of some motoring experiences he has had with a party of prospectors, who have been employing a two-cylinder twelve horse-power Gladiator car to take them up to that portion of the Rhodesian border that is bounded by the Limpopo River, the objective being a spot situated between Rhodes Drift and Massebi Drift. Before starting from Pietersburg the front axle of the car had been specially strengthened, and the gear ratio lowered. As the prospectors had told the motorist that the road was good and the distance only a matter of one hundred and fifty miles, he took no provision for sleeping accommodation with him, but he found that the luggage of his friends consisted chiefly of rugs, pillows, and waterproofs, which by the time that the car was loaded up with a sack of bread, tinned meats, coffee, tea, and so forth, and the passengers were in their seats, looked as if it would be impossible to get another cubic inch of stuff in it, so closely were they packed. The petrol consisted of four cases, totalling about thirty-two gallons, tied on to the footboards.

Nearly Lost in a Quicksand.

The first difficulty was experienced at the crossing of the Sand River. "Such sand I have never encountered in all the course of my varied experiences in Africa," writes Mr. Whittaker. "The car stuck in the middle of the stream in about eighteen inches of water, so we were obliged to take off our boots and socks and, all scrambling out, waded to the bank. All this while the car was gradually sinking in what I afterwards discovered to be quicksands. While I was regarding it ruefully, a horseman came up, and, beholding our difficulty, quickly brought a team of mules that had been grazing on the north bank of the river. By dint of much shouting, cracking of whips, and general noise, they dragged it out of what might have been a sandy grave. We were hauled over half-a-mile because the approaches to the river were very sandy also." That evening, encountering an old prospector, the party was persuaded to make a detour that meant eighty miles more travelling than had been contemplated. It was successfully undertaken, however, but on reaching the hotel next night it was noticed that some of the studs supporting the chain wheel were broken.

Garlic and Jackals.

Getting under way at dawn the following day, the party appeared to leave civilization in its crudest form absolutely behind. The guide pointed out on the sky line a mountain that he stated to be half-way towards their destination. About eleven o'clock that morning rain began to fall, which is an ill sign for the motorist in Africa, who knows full well the possibilities of being bogged up even on the main road. The next fifty miles took till nine o'clock to negotiate, for it was difficult to make eight miles an hour when actually moving, owing to water-holes, cart-wheel ruts, clay, and stumps of trees. "We camped for the night

near what they styled a water-hole, but what I called a cesspool. We had to boil the horrible green mixture that we got out of it. I was told that the coloration was caused by the rain water soaking through the vegetation, and was assisted by the trampling of the feet of wild animals. Just as we were going to make ourselves comfortable for the night it began to rain a miserable drizzle. We lay down in the wet grass, with the horrid smell of wet garlic round us, which I was told was a very good protection against the bites of mosquitoes. During the night we were disturbed by the howling of jackals, one of which had the temerity to snatch a piece of game out of the embers of the dying fire. Wet to the skin, we set off at daybreak next morning. Then we were in sore need of water for the car, but happily one of the party remembered a water-hole he had dug some two years previously, which was situated in the centre of a clump of trees from which cream of tartar is extracted."

Car-Plunging in Quest of Water.

"The way we reached the water-hole was characteristic. We were cutting through very high grass, and at the very instant our cicerone was explaining that he expected to find the hole, the car disappeared head first, only the rear portion hanging on to the bank of the very hole we were looking for. Happily we were not going fast at the time. The only damage was a bent scroll iron. Hauling the car out was a work of extreme difficulty, because the bank of the hole was composed of very soft yielding ground." Other pleasant experiences included the negotiation of a huge swamp, that necessitated all the party except the driver walking ahead and choosing the hardest part of the ground. Finally the car had to be temporarily abandoned in the swamp four miles short of the Limpopo. It was covered with tarpaulin to guard against the depredations of the monkeys, and when the party commenced the return journey after a week's prospecting, they were pleased to find the car as they had left it.

Motor-Boating in Assam.

The Orient offers tempting opportunities for motor-boating, but the craft have oftentimes to negotiate ticklish waters, as, for example, in a trip lately undertaken from the Barak into the narrow, shallow, brawling Jhiri. This is the first occasion on which a motor-boat has struggled through its snags and rapids, and the owner does not think he is likely to try it again yet awhile. The party bored their way against an eight knot current through a deep black gorge, and were compelled to keep in the middle of the stream, so there was no taking advantage of back waters. The slightest deviation from a middle course meant running aground, because the river was all turns and bends, and it was essential to keep on the outside edge of the curves to avoid the jutting sandbanks that had silted up on the inner edge. A handy man stood at the bow with a long bamboo rod to shove off the log and bamboo craft that rushed down on the intrepid motor-boat pioneers. The adventure, however, terminated without mishap of any sort, and illustrates the utility of internal combustion engines in service scarcely dreamt of by those who design them in Europe.

H. Massac Buist.

AËRIAL·FLIGHT

A Super-Active Month.

By far the most notable developments in connection with the science of aerial locomotion during the past month are those that have taken place in this country. To be frank, the Government has woken up to the situation and taken practical steps earlier than the most sanguine enthusiasts concerning the science would have dared to hope. To say this is not to argue for a moment that the Government has gone a step too far. On the contrary, it is a matter of the most urgent importance that a national effort should be made to ensure us that degree of supremacy in the air that we enjoy on the seas. From time to time Englishmen have played a most conspicuous part in the history of aerial locomotion, and it may be taken that there is a deal of significance in the remark of Mr. Wilbur Wright to the effect that he had no doubt that another period of high-tide was approaching, and that England would again occupy that position in regard to aeronautics which its history justly entitles it to hold. About one hundred years ago Sir George Caley carried the science of flying to a point which it had never reached before, and which it scarcely reached again during the last century. About fifty years later Henson, Wenham, and Stringfellow advanced aeronautics to a very high point, while less than two decades ago the work of Maxim, Philips, and their friends again placed England in the forefront. Each of these three periods of high-tide was succeeded by an ebb. What we are about to do is the result of the stimulus of competition from abroad. If the results of the Government's new policy are the placing of this country in a leading position in regard to the science, that will be the fourth time in the history of it that Britain has led the world. But a vast deal divides the situation at the moment from so delectable an achievement.

How It Came About.

The development of aeronautics, and its bearings on Britain, has been almost abnormally sudden, at least concerning the progress that has been made during the course of the current year. In February Mr. A. J. Balfour saw Mr. Wilbur Wright fly at Pau in a downfall of snow and under severe wind conditions, while a few weeks later King Edward witnessed a demonstration of the suitability of this particular type of aeroplane for scouting work. About the same time there was formed the Aerial League of the British Empire, which is known to the public chiefly for one excellently representative meeting held at the Mansion House, when the body in question was practically inaugurated. In a manner the unexpected promptitude of the Government action takes the wind out of the sails of the League. Nevertheless the League will be required, and should gain a vast number of members as a result of the Government action. The most praiseworthy feature of the Government policy in connection with this development of aviation for national needs is that it is not tainted with party spirit in any sense, while the Unionist Party itself, which is primarily responsible for

the inauguration of an aeronautical party represented in both Houses, is running it on lines of patriotism, the members being composed of gentlemen recruited from the ranks of both Liberals and Unionists.

Effect on the Science.

These matters have been touched on because to keep abreast of current history of the science of human flight, which is the purpose of these monthly notes, it is needful to take note of all manner of ideas that are likely to result in the practical advancement of the movement. The Government action, the formation of the aeronautical section in Parliament, the visit of Messrs. Wright to the War Office, the acquisition of one of their machines by the Government, and the agreement drawn up between the three aeronautical bodies of the United Kingdom, constitute a month of progress absolutely unparalleled in the history of the science in these islands. But what has been done so far is merely in the nature of getting the house in order. A plan of campaign has been settled on, and is even now being put into operation. The real work, however, has yet to be done. In this connection we would like to know precisely what sums of money are available and how they are to be apportioned. A Government grant of anything less than a quarter of a million a year is scarcely worth considering.

Division of Funds and Labour.

In my opinion a quarter of a million a year devoted to practical experiment should be quite an adequate sum for the next four or five years at any rate, but it is necessary to make it quite plain that the moneys granted for experiment must be regarded as entirely a separate fund from that apportioned for what one might style the manufacture and building of air craft once satisfactory types have been evolved. A quarter of a million a year for an experimental department would be an absolutely appalling proposition for a trading corporation, but for a nation it is far otherwise. Any commercial enterprise would be run on the lines of striving to achieve a definite result in respect to some one special branch of the science, as, for example, by taking in hand aeroplanes only, or by studying screw-type machines only, or by designing rigid dirigibles only, or what not. But the nation has a use for the best in every possible branch of the development in connection with aerial locomotion, consequently it requires a simultaneous conducting of at least a dozen important lines of investigation. It must exploit in synchronism biplanes, monoplanes, non-rigid dirigibles of a small sort, rigid dirigibles of a large sort, weight-carrying dirigibles, speedy dirigibles, high-flying self-lifting machines, mechanically-lifted machines that rise straight off the ground, ammunition suitable for employment by air craft, and weapons for attacking them. These are a mere handful of the investigations that require to be conducted, so that it may be readily appreciated that £250,000 a year would not work out to more than £10,000 or £20,000 a year to each branch, which is assuredly a very modest sum in view of the urgency of getting to work on practical lines.

H. Massac Buist.

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